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THE FORMATION OF POISONS BY MICRO-ORGANISMS, CONSIDERED IN RELATION TO THE PRODUCTION OF DISEASE.

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INTRODUCTION.

If we review the history of the observation and experiment that has been had, bearing on the relations of micro-organisms to the production of disease, we may formulate the following propositions:

1. Experiment and observation has shown that there are many varieties of micro-organisms that do not produce disease or injury; that the mere presence of these life forms is not sufficient to cause disease.

2. Experiment has, also, shown that there are certain varieties of micro-organisms that do uniformly induce disease when they obtain entrance into the bodies of animals, or men.

3. All through the experimentation on this subject it has been noticed that poisons have appeared in connection with the disease producing organisms.

4. These poisons seem to be a product of the micro-organisms; and while produced only in connection with the life and growth of these microscopic plants, may be separated from them, and when so separated, induce direct poisoning similar to that induced by the poisons from the higher plants.

5. This poisoning is different from the disease induced by the growth of the micro-organisms in the body, in that it is direct, and immediate, while infectious disease arises only after a stage of incubation.

6. Therefore, it is probable that each infectious disease is induced by a specific micro-organism capable of developing in the blood or tissues, and forming a poison or poisons through the means of its vital energies; or physiological processes of digestion, nutrition, and the casting off of waste products.

These considerations suggest an extended examination of the physiological phenomena of life in its varied forms, as the best means of gaining a clear conception of the teaching of the facts developed by experiment. It will be seen by any one who reviews this whole subject closely, that, while the experimentation which has been had furnishes the strongest evidence that disease results from the presence of micro-organisms—is brought about in some way through the life and activity of these lowly forms—the *modus operandi* by which they induce disease has been but partially explained.

Indeed, thus far, the principal effort has been to show that micro-organisms are regularly connected with certain processes of disease, and that these in no case occur without this accompaniment, rather than to show how they induce disease. This was necessary, in the beginning of this work, for the collection and collation of sufficient data upon which to construct theories and found a basis of truth, from which inquiry may proceed to the more perfect explanation of the mysteries of this important subject. The germ theory of disease as it stands to-day is essentially a mass of unexplained facts, developed by direct experiment of the most subtle nature; so subtle, indeed, that there are but few men who have the natural endowments and rigid training necessary to verify them in a manner, and with the certainty that the thought of the time demands. Under these circumstances, and with the plain fact before us, that the mere presence of the organisms is not a sufficient cause of the diseases which experiment teaches us are induced by them, we naturally turn to the well-demonstrated fact that micro-organisms do give rise to *poisons*, for an explanation of these phenomena.

It is our purpose now to make an effort to trace the phenomena presented by the life force in its relations to matter, with the end in view of elucidating this difficult point. In this direction, as it seems to me, we are most likely to find a satisfactory answer to some of the teachings of experiment that have appeared difficult to understand. In a brief paper like this, however, we can only glance at the principal points necessarily involved in a complete discussion of the subject.

The phenomena that we will now review will be digestion, absorption, nutrition, and the formation of waste products in the several forms of life, after which we will study briefly the relations which the changed forms of matter induced by the physiological activity of micro-organisms holds to the production of disease. This is necessarily a biological study.

Digestion is a process of solution and chemical reorganization of food material by which it is fitted for reception by the life force. The material thus prepared is conveyed within the organism by absorption or osmosis. Digestion and absorption are the admitted forerunners of all nutritive processes; the initial steps by which nutrition is rendered possible. I

hold that this is true in all the varied forms in which the life force is manifest. That there may be substances that are made use of by the life force without previous digestion is perhaps true; but there is, perhaps, no living thing not provided with the means of this mode of food preparation.

For the lack of time in which to present this entire subject, I will only present a synopsis of the parts relating to digestion and absorption. All digestion is performed by soluble ferments, elaborated by the organism, whether this digestion be performed in an alimentary canal or elsewhere.

A soluble ferment is a substance or body elaborated by the organism, for the purpose of dissolving and rearranging the chemical forms of food material, fitting it for reception by the organism.

The formation of a stomach or alimentary canal is an arrangement for the conservation of force, but in no wise changes the *modus operandi* of the digestive function. The digestive body may be thrown out into the surrounding media where digestible material is suspended, or upon digestible solids, and perform its function without the aid of a stomach. In this way the yeast plant digests cane sugar. In this way the micrococcus ureæ digests its food. In this way the bacterium termo has been shown to be able to digest starch.

It has been proven that the pathogenic micro-organisms are capable of digesting their food, and rendering it fit for being taken up by osmosis, by growing them on solid media which could not be appropriated without such preparation.

The embryo of the seed digests the store of starch laid up for its nutrition, by eliminating a digestive body called diastase, and by this means prepares its food material for assimilation, until such a time as it shall have developed the organs by which it gathers its own food. The same is true of the embryo in the egg.

The higher plants take up substances that exist in an insoluble condition in the ground in which they grow, by means of an excretion by their roots, which performs their solution, rendering them capable of being drawn in by absorption or osmotic action. This is a form of digestion.

The tissues of the higher animals are capable of forming digestive bodies under certain peculiar circumstances; *e. g.* the digestion and removal of the roots of the temporary teeth at the time of shedding; the removal of bone during changes of form; the formation of sequestra in case of death of a portion of bone.

The tissues of the higher animals are also capable of forming a menstruüm for the digestion and removal of substances accidentally, or purposely, lodged in the flesh. This is seen in the digestion and removal of the sponge, in the sponge graft; in the digestion and removal of the catgut ligature; in the invasion and partial removal of the sequestra of dead bone, and of pieces of ivory driven into the flesh.

In short, everything endowed with life, is, also, endowed with the power of preparing the food material necessary for the support of that life.

WASTE PRODUCTS.

In the beginning of the germ theory controversy, Schwan seems to have recognized that carbonic acid and alcohol were the excrementitious products of the yeast plant (*Annalen der Pharmacie*, Band 29, S. 93 und 100), Liebig in opposing the theory, alludes to this and recognizes that such a conclusion would necessarily follow, if fermentation were proven to be the result of the life force. (Agricultural Chemistry, page 124). Since that time, however, this idea seems to have been lost sight of by writers on this subject. Sometimes we see indefinite allusions to it. But there is no definite expression of the general law, that all forms of life must have their specific waste products, as they are seen in the animal forms. The remoleculization[1] of matter is continuous with the duration of life. The life force is dependent upon the remoleculization of matter for its support. No manifestation of the life force, in any form whatever, can be conceived of without this accompaniment. As the steam engine is dependent upon fire for its power, so is the life force dependent upon molecular changes in matter for its continuous existence. We can have no conception of life in the material form without the accompaniment of these changes. All forms of life are continually taking into themselves fresh increment of matter, in some form. This fresh increment of matter is converted into other molecular forms, for the support of the energies of that life which performed this conversion; and when this is accomplished it must give way to fresh increments of matter, which in turn undergo similar remoleculizations. The old must give place to the new. There is no such thing as standing still, except with definite provisions for temporary inactivity. Otherwise than this, inactivity is death. As new material is added, the old must be disposed of; must be cast out, or built up into formed material; where it takes no farther part in the physiological activity of the organism. Continuous molecular change of matter (inmoleculization) is the law of physiological existence.

As the living form must be supported by fresh increment, so it must give back excrement. Life is not to be supported by the continuous remoleculization of the same matter. After it has once accomplished its function in the economy, it becomes unfitted for further use, and is disposed of in one of two ways. It is either built into formed material or it is cast out as excrement. In either case it is dissociated with the physiological activity of the organism. The sum of the excrement, and formed, or fixed material, must in all cases equal the sum of the increment. There is nothing lost, nothing gained. All increment not present in the organism, must have been given back to the outside world as excrement, no matter what the form of life.

There is a general law observed in the formation of the excrementitious matters. Liebig while opposing the life theory of the fermentations, gives expression to this, as a law of all fermentations. I translate from "Chemische Briefe, 6te Auflage, S. 358":

[1] The word remoleculization is used to express the fact that a molecular change has occurred in matter, without expressing the character of that change.

"Fermentation is always in its results, a splitting of combined atoms into a compound rich in oxygen, and a compound poor in oxygen; so in alcoholic fermentation a certain amount of oxygen is divided from the sugar in the form of carbonic acid, and we obtain the inflammable alcohol poor in oxygen." When we compare this statement with the facts now known, we find it correct. But we may do more than this; for if we compare this statement with what is now known of animal and vegetable life, we find that it holds good here also. For in the animal forms we have as excrementitious products, the same carbonic acid rich in oxygen, and urea poor in oxygen. Here we see, as a final result of the remoleculizations, excretory products analogous to those of the yeast plant. I have already shown that, in the physiological sense, there is a close resemblance, a certain oneness of plan, existing among all forms of life in the matter of taking food. Now it is my purpose to show that this identity of plan is extended to all the living forms, in the matter of waste product as well. While there are almost unending differences of outward conformation, there is a continuous physiological sameness in them all. While certain cells, endowed with the power of combination for the building up of wonderful forms, as in the man, or in the tiger, in the lofty palm, or the forest oak; others not possessing the power of organization into complex forms, fall apart and carry on their physiological processes simply, as in the yeast plant, or the mycoderma aceti.

In the unicellular organisms, all the vital functions so far as they are differentiated, are carried on in the single cell, and in the higher animals, which proceed from the growth and development of some single, and equally minute germ, specialization of function goes hand in hand with specialization of physical form. Yet in all this specialization, there is no radical change in the functions of the individual cells, nor is the sum total of the physiological phenomena modified in their nature.

In most cases, apparent new functions, seen as we ascend the scale of life, consist, when closely examined, of vicarious cell action. Not a new function, but a particular function performed for the community of cells, so to speak, by certain cells specialized for that purpose, as we have already seen in the consideration of digestion.

Waste products may be divided into two classes: the respiratory and the urinary. The respiratory product is always rich in oxygen, while the urinary product is always, comparatively, poor in oxygen. This distinguishing feature remains constant for all forms of life, whether animal, vegetable, or the lower forms, that are so doubtful that some have thought it well to create for them a separate department.

The waste products of the animal forms are sufficiently known. The consideration of them has been entered into by every author who has written on the subject of physiology. Therefore a consideration of them here is not necessary. All of the excrementitious products possess toxic, or poisonous properties in some degree. If, by the occurrence of accident, or disease, urea be retained in the blood of an animal, it soon presents symptoms of toxæmia, and if the accumulated urea is not speedily eliminated, the animal dies. This is a general law of the waste products. No living being can sustain life with a large percentage of its waste product retained in its circulation. Neither can a micro-organism continue to grow after a certain amount of its waste products have accumulated in the menstruüm in which it is placed. Urea may be regarded as the alkaloid of the animal kingdom, and is the analogue of the alkaloids of the vegetable kingdom.

The consideration of the waste products of the vegetable kingdom is especially difficult for several reasons: Plants are characterized by the large amount of their formed material, as compared with the food material consumed by them in their processes of vital activity, and therefore, the amount of their waste products actually excreted is proportionally small. In them, however, other means are found for freeing their circulating fluids of waste materials, than that of actual excretion as seen in the animal forms, which will be considered further on. There is, however, a sufficiently copious excretion of the respiratory waste product, carbonic acid, in plants, and in addition to this, oxygen. These are too well known to require further comment here.

There is also a true excretory function performed by the roots of plants, and by seeds in the process of germination. When barley or other grain is caused to germinate in pure chalk, acetate of lime is uniformly found to be mixed with it, after the germination is somewhat advanced. * * * In this case the acetic acid must have been given off (excreted) by the young roots during the process of the germination of the seed." (Vide Johnston's Agricultural Chemistry, page 81).

This well authenticated fact may be regarded as the foundation of the theory that plants are endowed with the power of excretion. It is supported by the authority of Decandolle, and the convincing experiments of Macaire, although the experiments of others have shown that this excretion is limited to very small amounts of matter. Macaire seems to have found opium in the soil in which poppy plants grew. He also found, on washing with pure water the soil in which these plants grew, that it yielded a considerable quantity of acetic acid, and a trace of a brown organic matter.

Liebig devotes considerable space to this in his agricultural chemistry, with special reference to the possible effects of these excrementitious substances on the rotation of crops. Other chemists have also occupied themselves with it; and while it has been definitely shown that in some special cases plants may eliminate a sufficient quantity of excrementitious matter to prove injurious to successive generations growing on the same soil, the rule is that poisoning from this cause is not to be expected. Enough has been demonstrated, however, to show conclusively that many of the substances formed in the fermentations are also excreted, in very small amounts, by various plants. Even alcohol and ammonia are formed in this way, in small quantity. Although these sub-

stances, as a rule, contain no nitrogen, their chemical construction is such as to show their relationship to urea, and leave no doubt that they are properly analogues of that product in the animal kingdom.

ALKALOIDS.

By far the most important compounds to be considered in this connection are the alkaloids. These bear the same relation to plants that urea bears to the animal forms. There is seen in their chemical conformation, and characteristic properties, a marked relationship; and yet among them is found a wide divergence of poisonous effects. All possess in some degree the power of intoxication, while a few are the most virulent poisons known. Nearly all are composed, as urea, of carbon, hydrogen, nitrogen and oxygen. In a few of them oxygen is lacking, and in all the nitrogen is in smaller proportion than in urea. As we descend the scale, the nitrogen disappears, the oxygen is increased, and we have the organic acids and alcohols. All of these are waste products of the vegetable kingdom, though they are not all excreted.

As we have already seen, the higher plants are marked by the apparently small amount of their waste products and the large amount of their formed material. The formed material presents two very marked characteristics, which will perhaps, be better understood if we designate them as formed material, and as fixed material. The formed material is elaborated and stored away for future use, such as the starch, oil, etc., surrounding the germ in the seeds, and in certain organs of the plant, and various other products designed for future employment by the vital energies of the organism. The "fixed" materials, on the other hand, are such as are placed permanently beyond the vital energies of the organism. Some portions of the fixed material may still be of use to the plant by the physical support it gives to its organs; as lignin, which forms the stems and branches of trees, and the bark which serves them as a protection. They are not, however, of any further physiological use to the plant after having once, or a few times, served as conduits for the circulating fluids. Although waste products may be found in the fluids, as in the blood of the animal, it is in the fixed material that we find the bulk of the waste products of the plants, and it is here that the toxic principles are found in greatest abundance. Instead of being excreted, thrown out to the outer world, they are stored in the disused cells of the wood, and bark, united with other waste products in the form of insoluble compounds. This fact seems to have prevented an early recognition of their real nature.

Sachs, in his text-book of botany, describes them as "degradation products, which are no longer useful to the plant," and as, "secondary products of metastasis." When we look over the products thus set apart by Sachs, we find that nearly all of them may be set down at once, as analogues of the urine in the animals, of the alcohol, the acetic acid, the butyric acid, etc., of the fermentations.

It is to these products that we look for the most of the vegetable substances now employed as medicines. The active principles of these are the alkaloids. Therefore their effects upon the animal economy are well known to medical students, and need not be recited here. There are many other substances found in this relationship to the vital energies of the plant, which are worthy of special consideration if we had the time at our disposal. Tannic acid is one of the most constant of these products, and there are a large number of others not yet mentioned. We will only mention one other class of substances, the coloring matters which remain in the wood cells in a fixed condition, as a result of secondary metastasis. Precisely similar phenomena are seen in the micrococcus chromogenes, of which there are several varieties known. All such circumstances serve to point us forward in our efforts to explain the mysteries of nature.

BACTERIA.

When we come to consider the waste products of the bacteria and the allied forms of life, we are at once amazed and astounded at the wonderful power they possess in the remoleculization of matter. This is one of their special characteristics. This seems to be the form of life in which the largest amount of food material is consumed and the largest amount of waste product given back, with the least building of tissue. The largest amount of remoleculization, with the least amount of formed or fixed material. A whole jar of milk is turned sour, every particle of its sugar of milk converted into acid, and yet the amount of the formed material is so insignificant that it requires an acute and trained observer, provided with the best means of search, to find a trace of it. When a small amount of yeast is added to a solution of sugar, the whole of the sugar will be remoleculized, producing carbonic acid and alcohol within a few hours. Then we may take the example of the destruction of the dead carcass. The history of the experimentation of the past shows conclusively that it does not decompose if protected from these low organisms. Yet within a few days it is swarming with this form of life, in the presence of which it melts away like ice before a summer sun. It is first attacked by one form, which consumes, and throws out its waste products, as long as it can work in the continually increasing quantity of its own effete matter. Then it must give way to others that have already appeared on the scene of action, to which the waste products of the first are no hindrance. These in turn, give way very soon to still other forms, which again remoleculize the waste products of all the former that may retain a semi-solid or a liquid form, with any residue of the original carcass that may still remain; and, in an almost incredibly short time, the whole carcass has disappeared. The labors of Pasteur have thrown much light upon this subject. The fact that the acetic acid plant will again remoleculize the waste product of the vinous yeast plant, alcohol; and after that the mucidines will still remoleculize the acetic acid, converting it in turn into still other compounds, is full of instruction for all these processes. It would seem that the vegetable world is divided into two great classes of life forms, and that it is the office of the one to build up, and the office of the other to

tear down. Of all the life forms, the higher plants have the greatest power of structure building, both as regards quantity, in comparison with the amount of material consumed, and as to the actual quantity of structure formed; while in the lower plants, the bacteria and their allied forms, exactly the opposite of this is found in every particular.

No other form of life consumes so much in comparison to the amount of structure built. They are emphatically the destroyers of organic forms, physiologically constructed to, and for this end.

They must digest their food. If it be solid or semi-solid it must be liquefied in order to be absorbed. Then it must enter into the cells by the process of osmosis, and under the influence of the life force, be converted into protoplasm—albuminoids—into the tissues of the growing plants. After this come the waste products. How? The cell dies? No. This will not explain the phenomenon. If it were the death of the cells we would find the chemical forms of the cells in the waste products. This is not the case. Death does not alter the chemical forms. Therefore, there is remoleculization for the formation of the waste products, A vital process of shedding out the used material. The life force letting go of the matter it has in its grasp, and casting it out, as no longer of use to it.

It is by a vital process, then, that the waste products are separated from the living organisms, and in the bacteria, the general laws of physiology remain unchanged. Here, as elsewhere, we find the definite respiratory product, and the toxic, or urinary product. A sufficient number of these have now been studied enough for us to gain some notion of them, yet our knowledge is still limited to a few forms, among the bacteria and their allies. The best known is the yeast plant. In this we have alcohol, succinic acid and glycerine, as the urinary excrement. The bacterium lactis produces lactic acid. The mycoderma aceti produces acetic acid. Another form produces butyric acid, another a kind of mucus, another ammonia; while others still produce as their waste products, all of the ill smelling products of putrefaction.

I append a table of those best known, in connection with a table of the waste products of other forms of life, for comparison.

TABULATED STATEMENT OF THE WASTE PRODUCTS OF VARIOUS ORGANISMS.

Respiratory Products.	*Toxic Products.*
ANIMALS.	
Carbonic acid ..... CO_2	Urea ..... CH_4N_2O
	Creatine ..... $C_4H_9N_3O_2$
	Creatinine ..... $C_4H_7N_3O$
	Uric acid ..... $C_5H_4N_4O_3$
	Hippuric acid ..... $C_9H_9NO_3$
PLANTS.	
Carbonic acid ..... CO_2	Theine ..... $C_7H_{10}N_4O_2$
Oxygen ..... O	Veratrine ..... $C_{32}H_{52}N_2O_8$
	Morphine ..... $C_{17}H_{19}NO_3$
	Quinine ..... $C_{20}H_{24}N_2O_2$
	Strychnine ..... $C_{21}H_{22}N_2O_2$
	Atropine ..... $C_{17}H_{23}NO_3$
	Piperine ..... $C_{17}H_{19}NO_3$
	Nicotine ..... $C_{10}H_{14}N_2$
	Coniine ..... $C_8H_{15}N$,
	Curarine ..... $C_{10}H_{15}N$,
	Tannic acid ..... $C_{14}H_{10}O_9$
	Acetic acid ..... $C_2H_4O_2$
	Citric acid ..... $C_6H_8O_7$
	Malic acid ..... $C_4H_6O_5$
	Oxalic acid ..... $C_2H_2O_4$
ALCOHOLIC FERMENTATION.	
Carbonic acid ..... CO_2	Alcohol ..... C_2H_6O,
	Succinic acid ..... $C_4H_6O_4$
	Glycerine ..... $C_3H_8O_3$
ACETIC FERMENTATION.	
Carbonic acid ..... CO_2	Acetic acid ..... $C_2H_4O_2$
LACTIC FERMENTATION.	
Carbonic acid ..... CO_2	Lactic acid ..... $C_3H_6O_3$
VISCOUS FERMENTATION.	
Carbonic acid ..... CO_2	Mannite ..... $C_6H_{14}O_6$
	Gum ..... $C_{12}H_{20}O_{10}$
TARTARIC FERMENTATION.	
Carbonic acid ..... CO_2	Propionic acid ..... $C_3H_6O_2$
	Hydrogen ..... H
BUTYRIC FERMENTATION.	
Carbonic acid ..... CO_2	Butyric acid ..... $C_4H_8O_2$
	Hydrogen ..... H
AMMONIACAL FERMENTATION.	
Carbonic acid ..... CO_2	Ammonia ..... NH_3
(These two products unite to form ammonia carbonate).	
PUTREFACTIVE FERMENTATION.	
Carbonic acid ..... CO_2 (Complex)	Valerianic acid ..... $C_5H_{10}O_2$
	Ammonia ..... NH_3
	Sulphhydric acid ..... HS
	Fat acids (various eqv.) ..CHO

There is, perhaps, no other one set of organic compounds that have puzzled chemists more than those given in this table, or that have been, and still continue to be, of more interest in the scientific world. The table as it stands is only intended to give an outline view of these organic matters as a class, by setting before the reader fairly chosen specimens from the different forms of life. It is not intended to be in anywise exhaustive, but simply a comparison of these products. The similarity of their chemical construction will be apparent at a glance; and yet they differ greatly in their toxic properties. Some, as strychnine, are violent poisons to the animal kingdom. The members of the acid series vary from the alkaloids in that they contain no nitrogen, and they also vary as markedly in their toxic properties. Their close similarity to the alcohols will be noticed. It will also be noticed that some of the waste products of the higher plants are the same as those of the lower organisms.

There is, perhaps, an important difference to be observed here. The alkaloids of the higher plants, from the nature of their mode of excretion, are thrown out of physiological activity by being combined with the vegetable acids in the form of insoluble salts, and thus laid away in the "fixed material" of the plant. On the other hand, the animal alkaloids, urea, uric acid, etc., are eliminated in a soluble condition. In case of the micro-organisms, the waste products are very generally eliminated in a

soluble condition, also. But the comparatively more abundant product in the lower forms, is of much importance in this connection. Those given, are from the few that have been best studied.

In these no proper alkaloids have thus far been made out by isolation and exact analysis, but we cannot argue from this circumstance, that none of the lower organisms produce true alkaloids. As yet, but very few of them have been accurately studied, and these have, for the most part, been those that have been found useful, rather than poisonous.

On the other hand, we have much reason to believe that true alkaloids, of a poisonous nature, will be isolated at no distant day. We have already abundant evidence that poisonous properties are developed by a number of these forms. Otherwise how can we account for the results of the baccillus anthrax. How else can we account for sepsis, on the germ theory; except to suppose that a poisonous alkaloid is one of the products of the organism? How else can we explain Dr. Koch's results in the production of gangrene in mice, but to suppose that some product of the remoleculization by the organisms spread among and destroyed the tissues wherever they went. Again in the matter of sepsis, already referred to, it has been abundantly shown that the fluids contaminated by the bacteria are poisonous, when separated from the organisms; thus proving again that there is an organic poison developed which is fully capable of producing its effects in the absence of the life that produced it, the same as is seen in the alkaloids from the higher plants. This has taken the name of sepsin, after the order of the naming of the vegetable poisons; although it has not as yet been properly isolated and examined.

Many instances of a like nature might be brought forward if time would permit; but it is no part of my intention to treat this subject exhaustively. Some of the cases seem to show that the poison is of the nature of a local irritant only; as appears in Dr. Koch's demonstration of the bacillus tuberculosis; while many others seem to be general poisons with special tendencies to particular organs, as is seen in the splenic fever, produced by the bacillus anthrax. This is sufficient to show that there is much yet to be learned in this direction; indeed that this work is, as yet, in its infancy. In truth, the work done thus far has been in the nature of proving that organisms are regularly connected with the fermentations and decompositions, and, also, with certain processes of disease; rather than any effort to show how they bring about these results. This was necessary in the first instance, as the fore-runner of a farther, and more complete understanding of the subject that must come from a closer study of the modes through which these low organisms produce their effects. It is plain that we cannot know any one of the disease germs until all of the products of its remoleculizations have been isolated and studied, separate, and apart, from the organism itself, as has been done with the products of so many of the higher animals and plants. I see no other plan by which we can ever know the capabilities, and all of the possibilities, of micro-organisms in connection with the production of disease. In most cases of the discovery of poisonous properties in the higher plants, the specific product of the plant in which the poison resides has proven itself capable of isolation by the means known to chemists; and the disease producing poisons of the lower organisms will do the same when the effort to find them has been prosecuted with sufficient skill and energy. As alcohol has been isolated, as the vegetable alkaloids have been isolated, as the toxic elements of the waste products of animal life have been isolated, and as, through this isolation, the exact properties of these agents have become known to us, so must sepsin be isolated, so must the poisonous product of the bacillus anthrax (Anthracine) be isolated, so must the poisonous principle of every disease producing germ be isolated, and each of these studied separate, and apart, from the organisms which produce them; and in each case their properties must be demonstrated and determined by direct experiment, before they can be said to have been accurately studied, and that we know their properties and capabilities. This is the recognized means of learning the powers and capabilities of the higher plants and animals. No one is foolish enough to deny the value, the necessity, of the knowledge to be gained by this mode of study in the vegetable kingdom. If there has been any truth arrived at in all the research that has been given to the subject of the production of disease by the lower organisms, that truth requires to be extended, and rendered more exact, by the modes of study we have just indicated.

MANNER OF ACTION.

I may be permitted to make a suggestion in regard to the cause of the difference that is so often noticed in the comparative liability of different persons to attacks by these organisms. Several persons receive wounds. So far as can be seen, their chances for a speedy recovery are equally good; but some of these develop sepsis, while others do not. Now much of this is explained by the fact that we are unable to perceive the entrance of these organisms, and they may gain admission to the one and not to the other, and we be none the wiser until we find that sepsis is established. Yet over and above all this, there is a certain residue of cases that show that different persons are liable in different degrees, to sepsis, and the class of patients to which it refers, have been pretty closely defined. They are those whose powers of life have been weakened, by whatever cause. This is said to be the resistance of the tissues to the invasion of the organisms. How do they resist? Now if we accept the explanation of the formation of the digestive bodies, as previously explained, this supposition becomes tenable. When an organism, or spore of an organism, falls upon a cell, or naked granulation of a wound, and finds there the conditions suitable for its development, its digestive body is at once thrown out, for the preparation of its food material which exists in the tissues with which it is surrounded. This digestive substance proves irritant to the cell upon which the germ has fallen. This irritation excites the cell to throw out its peculiar digestive body for the removal of the irritant with which it is beset. Here we get a glimpse of the

antagonists. It is cell against cell; digestive body against digestive body. A contest has begun.

Which will win? The stronger, of course. If the man be vigorous, and resistant, and his tissues highly endowed with the energies of life, the chances are this much in his favor; but if, on the other hand, his powers of life be at a low ebb, if his tissues respond to irritants but feebly, then the chances are thus far in the favor of the intruding organism. In the first case, the cell upon which the intruding germ has fallen, responds promptly to the irritation; a substance calculated to free it from the effects of the intruder is formed, and poured out upon it, and meets the digestive body of the intruder, hindering, dissipating, and nullifying its action. In this way the intruding germ is in many cases, possibly, overcome and driven out or destroyed. In the opposite case, where the vital powers are at a low ebb, the response to the irritation is perhaps very sluggish, the digestive body is poor in quality, and scanty in quantity, and the intruding germ has an easy victory.

If we suppose that the intruder is a spore, a seed with a store of food material laid up within its shell, the case is not different essentially. The history of the experimentation on this subject shows that during this process excretory products are thrown off, and these may prove direct irritants that will arouse the resistant energies of the tissues.

Surely if the tissues are capable of forming, by reason of irritation, a secretion that will digest a piece of ivory that has been thrust into the flesh, which has been proven by direct experiment, we should expect this kind of resistance to be offered to the development of disease producing germs.

Again, the history of cases shows that sepsis is most liable to occur in the early time of the healing of wounds, at a time when the tissues may be supposed to be still suffering from the effects of the shock. In this case it must be supposed that the tissues are not so well able to contend with the intruding germs as they are afterwards, when the process of granulation is going forward vigorously.

We have also experimental evidence establishing this point. Sonnenschein found that certain bacteria with which he was experimenting failed to grow in the tissues of an animal. Believing from the results of previous experimentations, that sepsin injected with the bacteria favored their development, and having found the effects of sepsin similar to that of sulphate of atropia, he injected a small amount of that drug with the organisms, and found that under these conditions they grew and produced sepsis. It is difficult to see how the sulphate of atropia could aid the bacteria otherwise than by paralyzing the tissues temporarily, preventing their resistance until the organisms had established themselves. A number of other experiments have developed facts of a similar nature.

Gradle says, page 123: "We do not know whether putrefactive bacteria exert any direct influence upon the exposed tissue. Even if that be not the case, the products of decomposition which they engender irritate the wound in an unmistakable manner. This is seen in the redness and sensitiveness of the margins of the wounds. *These bacteria are always overcome by the tissues.*"

Observations have been recorded by a number of competent observers that go to show that the white corpuscles of the blood, the leucocytes and the wandering cells exert a special influence against the intrusion of micro-organisms. These cells appear to pick up the organisms and take them into their interior, and I am of the opinion that in very many cases the organisms are destroyed—digested—by these cells, but in other cases the cells are overcome—digested—by the organisms. It becomes a question of the relative power of the opposing digestive bodies.

CONCLUSIONS.

In conclusion, allow me to sum up in several definite propositions, in order that the discussion may be the better directed, and confined, to the more important points brought forward.

1. All cognizable forms of life are dependent on the production of molecular change in matter for their continued existence.

2. Every cognizable form of life, capable of independent existence, must have the power of digestion for the preparation of food material for the nutrition of its material structure.

3. Each living cell must appropriate to its nutrition food material prepared by a digestive body of its own formation, or by the appropriation of material prepared for it vicariously by some allied living cell.

4. Every living cell must support its life and material structure by the continued imbibition, and remoleculization of matter within itself; except during the special provisions of rest, as in the seed, egg, etc.

5. Every living cell must, as the result of the remoleculization of matter within itself, form waste products of two classes; a respiratory waste product rich in oxygen, and an urinary waste product poor in oxygen. All waste products are poisonous to the form of life from which they emanate.

6. Natural organic poisons are uniformly waste products of the organisms in which they are formed.

7. Pathogenic micro-organisms, by their remoleculizations of matter, form poisons of the nature of the alkaloids, which are the active agents in the production of disease.

8. While I should not class the digestive bodies, and diastases, as organic poisons, they may act as irritants when applied to another form of life than that which produced them.

9. The normal tissues of the animal resist the invasions of micro-organisms by throwing out, or forming a digestive body calculated to destroy them or dissipate and nullify their action; aroused thereto by the presence of, or the irritating agents given out by, the organisms.

A YEAR'S SURGERY AT THE LONDON TEMPERANCE HOSPITAL.

BY A. PEARCE GOULD, F.R.C.S., M.S.

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Read in the Section of Surgery and Anatomy of American Medical Association, May, 1884.

When in July of last year I had the pleasure of taking the distinguished President of the American Medical Association, and Professor Dennis, over the wards of the London Temperance Hospital, Dr. Flint extorted from me a promise to send a short paper to the Washington meeting of the American Medical Association, containing some account of my surgical experience at that hospital. It is therefore in redemption of that pledge that I venture to lay this brief communication before this distinguished audience.

In 1873 a house was taken in Gower street, London, and converted into a hospital for "the medical and surgical treatment of the sick, without the ordinary administration of alcoholic compounds;" and in 1882 the institution was removed to its present well-found and commodious building in the Hampstead Road. At first only 52 beds were opened, but at the present time, building operations are being carried on, and before the close of the year it is hoped that a hospital of over 120 beds will be in full working order.

In the autumn of 1882 I was asked by the Board of Management to undertake the charge of the surgical patients, and I entered on my duties on Jan. 1, 1883. I propose to lay before you a few facts derived from my experience since then, and will base them upon all the cases admitted under my care during the year 1883.

I must, however, make one or two preliminary observations to explain the nature and the mode of the work done at this hospital.

1. The patients are not all teetotallers; all the necessitous sick are alike admissible to the wards; and personally I may say that the fact of being an abstainer or the reverse never influences me in recommending a patient for admission. Practically a large number of abstainers seek admission, and I find that among my patients during last year they amounted to 74, or 39 per centum.

2. No selection of patients is made except such as is employed in every hospital, that is incurable cases and cases of infectious disease are the only ones inadmissible.

3. Alcohol is not given as an article of diet under any form or under any pretext; nor is it used in the preparation of tinctures, infusions, or other medicinal compounds.

4. The visiting staff are free to administer alcohol in any form and in any amount to any patient under their charge, when they deem fit. The only restriction being that in such cases careful notes should be made of the condition of the patient before the alcohol is given, the amount of alcohol taken, and the effects observed.

I am anxious that it should be clearly understood that alcohol is not excluded from the hospital altogether, but only as an article of diet and as a vehicle for other drugs.

In the early days of an hospital, and especially such an one as the London Temperance Hospital, it is not possible to keep the surgical wards full of acute or severe cases. But during the year 1883 I find that there were 190 cases admitted under my care. Of this total 9, or just 4.73 per cent. died.

I cannot, in the time allotted to me, give details of the individual cases, and I propose, therefore, to attempt only a brief classification of them, and to add a table of operations; details of the fatal cases, and then, finally, make some remarks upon the value of alcohol in surgical practice.

There were in all sixty-seven (67) cases of injury admitted into the hospital. Among these were five (5) cases of compound fracture, fifteen (15) cases of simple fracture, two (2) dislocations, sixteen (16) wounds, including wounds of scalp and a wound of the temporal artery with severe hæmorrhage; twelve (12) contusions, five burns and scalds. Of these 67 cases four died.

The cases of disease amounted to a hundred and twenty-three (123) with five (5) deaths. These included thirteen (13) cases of disease of the joints, fourteen (14) cases of disease of bones, twenty (20) cases of disease of the alimentary canal, twenty (20) cases of disease of the genito-urinary system, sixteen (16) cases of abscess, eleven (11) cases of ulcer, nine (9) cases of tumor, and twenty (20) cases that may be grouped as miscellaneous.

In one of these cases, to be mentioned directly, alcohol was given, but not in any of the remainder.

In addition to minor and trivial operations there were forty (40) operations performed which may be here detailed:

Amputation of thigh,	1
do of leg,	2
Colotomy,	1
Gastrotomy,	1
Castration,	2
Removal of tumors,	5
Rapid lithotrity,	1
Radical cure of hernia,	1
Excision of varicocele,	1
For hæmorrhoids and prolapsus ani by clamp and cautery,	10
Opening knee-joint,	3
For epithelioma of lip,	2
Excision of tongue and submental glands,	1
For genu valgum (MacEwen's operation),	2
Excision of tarsus,	1
External urethrotomy,	1
For fistula in ano,	3
For necrosis,	2
	40

It is only needful to add particulars of some of these cases. The amputation of the thigh was for advanced central sarcoma of the lower end of the femur. The patient, a lad aged 18, was up ten days after the operation, and left the hospital on the 22d day quite well. The first case of amputation of the leg was in a man 66 years of age, admitted with a compound fracture of tibia and fibula, for which secondary amputation through the upper third of the leg was performed. There was a little necrosis of the tibia, and a troublesome abscess and neuralgia in the stump, and the man was in the hospital 115 days after the amputation. The remaining amputation was at the same site for incurable ulcer of the leg in a woman, aged 55. The stump healed up without complication. The cases of colotomy and gastrotomy are elsewhere referred to. The patient upon whom rapid lithotrity was performed was 32 years of age, with a small stone. The knee-joint was opened in one case for the removal of a loose cartilage, with complete success. In another patient both knees were opened for very long standing hydrops articuli. The joints when apparently nearly healed suppurated, and the girl got into a hectic condition, and was removed from the hospital by her friends. I have since heard that she has recovered. In a third case I opened the knee-joint and removed the whole of the greatly thickened synovial membrane. This patient died. The only other operation of gravity was a removal of the tongue behind the circumvallate papillæ, by the scissors, and excision of infiltrated submental and submaxillary glands for advanced epitheliomatous disease. This patient, æt. 66, recovered well, left the hospital 35 days after the operation, but has since died from recurrence in the cervical glands.

The fatal cases were nine in number:

1. The first was the case of a laborer, 41 years of age, admitted with strumous synovitis of the left knee-joint, of four months' duration. He was a tall, thin, pallid, delicate-looking man. For two months he was treated with rest, extension, counter-irritation, and the usual remedies, but his local and general condition becoming worse, I was compelled to resort to operation. The man absolutely refused amputation, and I accordingly performed antiseptic erasion, making a free incision into the joint on each side, and removing the thickened synovial membrane. This was not followed by any effort at repair, but there was profuse suppuration, the discharge was scant, but the temperature ranged high, and he gradually sank and died from exhaustion. At the autopsy an old cavity was found at the apex of the left lung, miliary tubercle in the right lung, amyloid degeneration of the liver and kidneys; the articular cartilage of the knee-joint was all eroded.

His appetite continued good until a week before death.

2. The second case was that of a woman, aged 62, admitted with intestinal obstruction of fourteen days' duration. There had been vomiting three and again two days before admission, which was stated to be fæcal. But it was not until four days after admission that she vomited again, when she brought up several pints of liquid fæcal matter. Accordingly, as I had administered copious enemata repeatedly without avail, on May 26 I opened the colon in the right flank, and liberated at once about two pints of liquid fæcal matter. The woman, however, died next morning from collapse. At the autopsy a cancerous stricture of the middle of the transverse colon was found. The intestines were somewhat congested, but there was no lymph on them, or loss of polish anywhere, nor any evidence of peritonitis. There was hypostatic congestion of both lungs.

3. The third case was likewise one of intestinal obstruction in a young child aged 3½ years, admitted on May 27. There had been vomiting and constipation since May 22, and it was stated that "blood and slime" had been passed the day before admission. I first saw the child on May 29, and immediately opened the belly in the middle line, and found a small intussusception in the right iliac fossa, which I reduced. The small intestine was extremely distended, and in attempting to return that which had escaped through the incision, the peritonæum was torn. The child sank and died in nine hours. At the autopsy there was lymph on the coil of intestine which had been wounded, for a length of two or three inches. The intussuscepted gut, which was the lower end of the ileum, was purple in color, but not inflamed.

4. The fourth fatal case was that of a woman, aged 31, whose night-dress caught fire and was completely burnt off her, inflicting burns of the first, second and third degree, extending over the whole of the right upper limb, the left forearm, right side of the face and neck, and the right half of the back, chest and belly. She died on the seventh day, the temperature ranging between 102° and 104° Fah. for five days, and standing at 105° at the time of death. At the autopsy there was found some congestion, but no ulceration of intestines; hypostatic congestion of the base of both lungs, with acute bronchitis.

5. The fifth case was that of a little girl æt. 8, admitted on June 16 with caries of the spine and iliac abscess; the abscess was aspirated on several occasions. She died on July 30 from tubercular meningitis. At the autopsy there was found an enormous abscess connected with the diseased bodies of the vertebræ, and some gray granulations scattered through the lungs and pia mater.

6. The next death was a woman æt. 65, who suffered from a scald of the third degree, of the buttock, the right and left thighs, and the right leg. The sloughs separated and the wound began to granulate well, but 3 weeks after admission she became delirious, constantly muttering or crying out, although she could at times be roused and answer questions. She died from exhaustion 5 days after these symptoms set in. At the autopsy the only notable change found was the hypertrophy of the bladder, with pus in both ureters and the pelvis of each kidney, and a small abscess in the left kidney.

7. The seventh case was that of a man 67 years of age who was brought to the hospital with a subcoracoid dislocation of the right shoulder. While attempting reduction by Kocher's method, the surgical neck of the bone snapped across, but under chloroform the head of the bone was replaced in the glenoid

cavity and the fracture "set." The patient was made an out-patient on the third day. Unfortunately, he was a man of intemperate habits, and after a debauch he fell and sustained an impacted fracture of the neck of his right femur. For this he was re-admitted and treated with rest in bed and a long splint. He was a very troublesome patient. For a time all went well. Then he sank into a low state with muttering delirium, and died 33 days after his readmission.

8. The eighth case was that of a girl æt. 16, admitted on Dec. 22 with an alveolar abscess in connection with the lower jaw. When I first saw her this had burst into the mouth. The swelling gradually subsided, but some induration over the jaw continued for some time. On Jan. 14 all local symptoms had passed off, but she was very pale, anæmic and thin, and I ordered her some tonic medicine. Next morning she became cold and collapsed, complaining of diffused pain over the belly. I saw her and found her almost pulseless at the wrist, with retracted belly and no local indications of the cause of the collapse. I ordered hot applications, sinapisms, and hypodermic injections of ether. I saw her again at night, when she appeared to be moribund. On going to the hospital next afternoon I was surprised to find her alive, quite conscious and less cold than on the previous evening, but there was no pulse at the wrist, and it was only feebly felt at the groins. Thinking there might be some chance for her as she had lived so long, I gave her at once an ounce of champagne; the pulse at once became perceptible in the brachial artery; in an hour the champagne was rejected, and she appeared to be holding her ground, but soon afterward she suddenly fell back in bed and died. Unfortunately, we were not allowed to make any post-mortem examination.

9. The ninth and last case was of a woman who was admitted on the evening of Dec. 31, having been picked out of the Regent's Park Canal. She was almost dead on admission, and in spite of every effort at restoration, including sinapisms and injections of ether, she died just after midnight. No autopsy was allowed.

I have thought it right to give these details of all the fatal cases, and I do not wish to explain away the facts. I think, however, that they show that all classes of cases may be met with in this hospital, that a fair proportion of severe injuries and diseases come there for treatment, and that in so far the wards of the hospital will bear investigation. I cannot tell what impression the notes of these cases may make upon my hearers, but I may perhaps add that I did not feel in regard to any one of them *at the time* that alcohol would have saved or prolonged life. As stated, alcohol was given in one case, and in none of the others was it withheld on account of prejudice, but solely for want of a sufficient indication for its employment.

I cannot convey any impression as to the way in which the patients progressed day by day while under treatment without alcohol, and the cases are too few to warrant the employment of the statistical method, and with a far larger number I should hesitate to adopt it. But it is not too much to say that they show the hospital to be actively engaged in the treatment of the same class of cases found in the surgical wards of any of the larger metropolitan hospitals, and that therefore its work is worthy of the careful attention of the profession. My object in this paper is not to show that alcohol may be or ought to be excluded altogether from surgical practice, but to show to how large an extent it can be dispensed with, with safety; and to express my conviction that its employment is not attended with advantage in a large majority of cases, while in many it is positively and seriously injurious. There is no stranger fact in the present-day therapeutics than the position held by alcohol. There is no disease and scarcely a single pathological condition for which it is not prescribed. It is a drug that never fails in the hands of the majority of practitioners; when cases improve the alcohol administered is invariably and without question accredited with no small share of the favorable result; when patients pass from bad to worse and die, the alcohol may have been given too late, or in too small doses, or have been overcome by a too-strong foe, but it certainly prolonged life and exerted a beneficial influence! Such, practically, is the argument of not a few practitioners, even if they hesitate to formulate it. The scepticism applied often so ruthlessly to other drugs has scarcely dared to hint that alcohol is not an all powerful remedy, able in one way or another to cope with any of the diseases of our frame. When the results of prescribing alcohol so widely come to be closely questioned, I am confident that it must lead every candid surgeon to restrict very largely the use of this drug. Without entering into a consideration of the physiological action of alcohol, or attempting to apprize its value in every class of injury and disease, I would submit the following propositions in regard to it:

1. *That alcohol is contraindicated in all cases where it is important to secure physiological rest!* I am aware that alcohol is a powerful *narcotic*, but I believe it to be a very rare conjunction of circumstances which permits of its successful employment as such without attendant evil from its *stimulant* effects.

2. *Therefore in the period immediately following operations and injuries*, especially large wounds such as in amputations and excisions, compound fractures, and severe hæmorrhage, *alcohol is contraindicated.* It is only admissible in those extreme cases where life is in immediate danger from failure of the heart, and in these cases we have in subcutaneous injections of ether a more potent stimulant.

3. *For exhaustive diseases alcohol is contraindicated except as a temporary stimulant*, and for the following reasons:

a. By increasing the frequency and force of the heart's action without at the same time proportionately increasing the nutritive activity of the heart, it hastens the exhaustion of that organ.

b. By dilating the small vessels it increases the difficulty with which the circulation is carried on.

c. By impeding the action of the digestive and assimilative organs it lessens the supply of nutritive material entering the blood. I have been much struck

by the appetite, the easy and regular digestion, and the absence of the common indications of gastric and intestinal trouble which patients who are not taking alcohol present.

d. By increasing the work thrown upon the lungs and the kidneys, the two great excretory organs of the body, alcohol hinders the proper depuration of the blood, and possibly hastens the occurrence of the hypostatic congestion of the lungs so prone to occur in these cases.

e. By its narcotic influence upon the central nervous system, it interferes with the due discharge of its functions.

4. *In alcoholism, whether acute or chronic, alcohol is contraindicated.*

RATE AND CAUSE OF MATERNAL MORTALITY IN 1,000 CASES IN PRIVATE OBSTETRICAL PRACTICE.

BY WILLIAM M. FINDLEY, M.D., ALTOONA, PA.

Read in Section of Obstetrics and Diseases of Women of American Medical Association, May, 1884.

While the rate of mortality, as given below, may be greater than that found in the experience of others, yet the writer apprehends that the causes as described, will make it appear that it is not excessive. The comparison between the same classes of cases in hospital and private practice, will show much more favorably if, as I think, due credit is given to the manifold obstacles which surround the practitioner in private circles. Called, as he often is, only "in extremis," when labor has progressed so far that a malposition which could have been readily corrected before the labor began, or in its early stages, has become an irremediable condition, is it any wonder that fatal results follow? Is it not the greater wonder that fatal results do not more frequently follow? Compelled to attend puerperal cases in the most unsanitary localities, and under the most unhealthy conditions, with no opportunity to remedy surroundings, or prepare the patients for the ordeal, is not the practitioner in private practice to be commiserated when comparison is made between him and those who serve in the hospitals surrounded with all the appliances of science and art to aid them; all the assistance required, either professional or otherwise, and in large majority of cases with time beforehand to prepare their bad cases for that which is before them, if, indeed, it be true that many of the fatal results follow uncleanliness, this being the leading factor as at present taught in causing the septic troubles.

Hoping that others who have like statistics may present them for the purposes of comparison, and trusting that still others may have had yet smaller mortality rates, I offer this:

CASE 1. Woman, aged 23, first pregnancy, aborted about the end of the fifth, or beginning of the sixth month. Septicæmia resulting from the detachment of a very firmly adherent placenta, leaving a very large portion of the uterine surface in an injured condition, and in whom neither internal medication, nor medicated injections locally produced the slightest relief.

CASE 2. Woman, aged 33, fifth pregnancy, was delivered in the same room in which lay two of the children of the family suffering from scarlatina. As she lived in a town ten miles away, and I was summoned by telegraph, arriving only to find her in the active throes of labor, and with no other place in the house to remove her to, she lay exposed to the scarlatinous poison, which developed in the characteristic pyrexia, eruption, etc., on the third or fourth day, and the end soon came. This case was attended for and in the absence of a practitioner who was already in charge of the scarlatina cases, and attended her after the delivery until her death.

CASE 3. Woman, aged 19, first pregnancy, was delivered in what bid fair to be perfectly normal condition, but who on the second day had a severe rigor, very high temperature, and in short time was covered with the scarlatinous eruption, dying on the fourth day.

CASE 4. Woman, aged 34, eighth pregnancy, who early in this pregnancy showed unmistakable signs of acute renal disorganization, fell into labor six weeks before the end of gestation, was delivered of a very small, feeble child, and in removal of the placenta, which gave no trouble, gasped, exhibited sudden indications of heart clot and expired, as it appeared to the writer, from the sudden absorption of additional urea into the circulation when the pressure exerted by the gravid uterus was removed.

CASE 5. Woman, aged 26, second pregnancy, had been under the care of a midwife, as they were all Germans, for 20 hours; when summoned, found it necessary to perform version, which was done, and delivery effected in a few minutes, patient left perfectly comfortable, although exhausted; as it was at some distance, the patient was not seen again, but was informed that she died in 24 hours afterwards—no history of excessive hæmorrhage, and attributed it to exhaustion or heart clot.

CASE 6. Woman aged 21, first pregnancy, labor only twelve hours in all, everything apparently normal until the end of the second day, when she had a very violent rigor, what was considered to be general peritonitis was developed, and she died at the end of the fourth day. There was a history of great mental depression here for a long time prior to the labor owing to unhappy marital relations.

CASE 7. Woman aged 36, in the 9th delivery, who had been greatly exhausted by frequent pregnancies and very severe labors owing to very marked pendulous uterus, was delivered by version after failure to put on the forceps, owing to the hydrocephalic condition of the head; was very much prostrated and notwithstanding every effort was made use of to aid her, the state of shock persisted for 19 hours, when she expired.

CASE 8. Woman aged 22 in her first labor, only

eight hours, was delivered of a healthy female child, without complication except a very slight laceration of the perinæum which was kept touched with astringents and antiseptics, but who, owing to an injudicious nurse's action in giving her a heavy supper of meats, etc., within twenty-four hours developed septicæmia, ushered in by a rigor and following the usual course for six days, terminated in death.

CASE 9. Woman, aged 29, in her first pregnancy, having been in perfect health up to January 28, 1883, was seized with a sudden pain immediately under the third dorsal vertebra which became so severe that the writer was summoned within thirty minutes of the inception of the trouble, and administered a hypodermatic of morphia which relieved the intense pain, but before doing so it was noticed that the lower extremities were paralyzed, and that there was retention of urine. The pregnancy had reached the end of the seventh month without further details, except to say that it proved to be spinal apoplexy, and that although the greatest care was exercised, a bedsore as large as the hand formed over the sacrum in twenty-four to forty-eight hours, and abortion was advised on consultation, and brought about, nothing seemed to avail and death closed the scene on the eighth day.

CASE 10. Woman aged 43 in the 11th pregnancy, who had experienced great trouble in all her previous confinements, had a fall one week prior to the date of actual labor, and then lost a large quantity of blood, but as the flow checked up by rest she received no medical attention; again two days before the writer was called, she suffered the loss of what was said to be a great quantity of blood, and again no medical aid was summoned; finally on the evening of Nov. 7, 1883, she had another frightful hæmorrhage, and on reaching the house I found her almost pulseless, and incapable of articulate speech; uterus high up; no dilatation of the os and no hæmorrhage at the time. As I could not reach the bag of waters to puncture, resort was had to the tampon, and large quantities of nutrient and stimulant liquids—the os dilated rapidly, labor progressed speedily and she was soon delivered without the loss of two ounces of blood additional. It appears to me that the whole process of labor was of the character which might best be described as ante-mortem, for the heart's action was very rapid and irregular, and she never gained complete consciousness during the time I saw her.

RECAPITULATION.

Septicæmia was accountable for	two	deaths.
Scarlatina puerperalis . .	two	"
Heart clot	one	"
Renal disorganization .	one	"
Shock	one	"
Spinal apoplexy . . .	one	"
Hæmorrhage, ante-partum .	one	"
Peritonitis, general . .	one	"
Total, ...	ten	deaths.

It will be apparent in this limited number of deaths that the septic element is still the great factor, and while this is true, may it not also be true that with all our knowledge there may be some cases of true, or analogous to true, puerperal fever? a something more than mere sepsis introduced through a wound of the genitals. It is noticeable in the discussions of this subject in the New York Academy of Medicine that there were still manifested grave doubts as to total absence of something more than that which comes from without; although the weight of evidence was most in favor of infection through abrasions and wounds, rather than from a true autogenetic origin.

How to lessen the mortality in puerperal cases is a very important and interesting subject of discussion, and aside from the septic cases, the writer feels totally at a loss to know how to proceed or what to suggest in all the other conditions recorded as causing death from the standpoint of his personal experience. True, Dr. Busey in a late (April) number of the *American Journal of Medical Sciences* records a favorable termination in a case of scarlatina puerperalis, but is that not an exception to a very general rule of the fatal issue of that class of cases? and as he shows is largely true only of those cases which are attacked late in the lying-in.

And what shall we do in heart clot and marked renal disorganization, and shock and spinal apoplexy? As for ante-partum hæmorrhage, I doubt whether my patient would have died had she been seen at or after the first loss of blood more than a week before she was first seen by me. I might have used intravenous injections of blood or milk, but the efficacy of such measures is still a moot question, and totally impracticable in this case.

The great duty before the medical profession now is evidently the earnest endeavor to guard against septic infection in puerperal cases. It is the great effort in surgical treatment, and it matters little what measures are adopted so that perfect cleanliness is maintained, and such germicides are made use of as will destroy the noxious germs, not troubling ourselves about the multitudes of germs which are innocuous.

During the terrible epidemic of 1873, the writer was especially fortunate in having no septic cases except one case of scarlet fever, in the parturients coming under his care, while in a population of 10,000 or 12,000 there were a number of deaths, some 30 in all from that cause, rendering it a time of especial dread. These deaths, in very many instances, were among the class of women who were cared for by midwives, and frequently lacked all proper care, and, as I have been told, the disease often progressed so insidiously to the bad that danger was not apprehended until all hope was passed.

The septic deaths occurred in order in the 66th, 524th and 659th cases from septicæmia and general peritonitis, and in the 166th and 229th of scarlatina puerperalis, one of them, viz., the 166th of scarlatina puerperalis, in the year 1873.

As hinted in the discussion at the Academy in New York, long periods may elapse between the deaths from septicæmia, and unless carefully recorded may easily be forgotten, especially as all like to forget failures, unless willing to make them public for the general good, so that all mere assertions from memory

may and likely do prove fallacious, and the fact still remains that septicæmia is the one disease which we should most strenuously combat, and he who guards his parturient clientele most carefully from this insidious foe will be the one most fitted to practice his noble art.

In conclusion, as stated in a paper by W. W. Jaggard, M.D., as to the Vienna mortality in Carl Braun's clinic being only one-half of one per cent. from septic diseases, it is with a feeling of something akin to self-gratulation that the writer notices that the mortality in his list is not much greater, and that his entire mortality, omitting the two cases clearly not properly included in his death-rate, is only three-quarters of one per cent.

MEDICAL PROGRESS.

ANATOMY AND PHYSIOLOGY.

Observations on a Decapitated Head.—The observations related by Dr. Petitgrand, in a paper published in the *Revue Scientifique*, extracts from which are given in the *Medical News*, are highly important as furnishing the most precise evidence of the presence of consciousness after decapitation that exists. The man executed was a pirate, of robust frame and brave demeanor. He was an Annamite, and executed at Saigon. M. Petitgrand concentrated his whole attention upon him. He was placed in a kneeling posture, strongly attached to a solid post in front of him, with the head and neck voluntarily and strongly flexed.

The place for the blow having been marked with betel juice, the head was struck off at one blow by means of a long sword having a broad blade; the procedure, to be properly carried out, requiring great address on the part of the executioner, and much *sang froid* on that of the culprit. When this is the case there is, of course, far less contusion and concussion of the spinal cord than with the guillotine, and therefore so far a greater possibility of an ulterior manifestation of the functions of the encephalon. During the preparations Dr. Petitgrand never withdrew his eyes from the culprit, placed at two metres distance only, and with whom he more than once exchanged looks. The head fell within a metre and a half from him, without, as ordinarily, rolling away; and the divided part of the neck resting on the sand, the hæmorrhage which ensued was very slight. At this instant he was startled at finding the eyes of the head steadily fixed on his own, and not believing that this could be an act of consciousness, he rapidly described a quarter of a circle around the head, which lay at his feet, and saw plainly the eyes following this movement. He now returned to his former position, but more slowly, and the eyes followed him for "a very short instant," and then suddenly ceased to do so. At this moment the face expressed manifest anguish, the poignant anguish of a person in a state of acute asphyxia. The mouth opened violently, as if to take a last gasp of respirable air, and the head, thus displaced in its equilibrium, rolled on its side. This contraction of the maxillary muscles was the last manifestation of life, a period of from fifteen to twenty seconds having elapsed since decapitation.

From these facts Dr. Petitgrand draws these conclusions: (1) That the head separated from the body is in possession of all its faculties as long as the hæmorrhage is restrained within certain limits, and that the proportion of oxygen dissolved in the blood is sufficient for the maintenance of the nervous function—that is, for a short period, which in any case would not exceed half a minute. (2) That the repeated convulsive movements of the lower jaw, after the head has become detached—movements which, without doubt, have given rise to the expression, "biting the dust"—are nothing else than the habitual reflex movements of the face in acute asphyxia. These cannot be absent when the little blood contained in the decapitated head flows away or becomes disoxygenated, and are caused by the sensation (probably conscious) of the want of necessary oxygen in the blood remaining in the encephalon. On the present occasion Dr. Petitgrand had no opportunity of observing the trunk of this beheaded man, but he has had opportunities of observing it on other occasions, and has always noted the following circumstances: The head once detached, the trunk (the body being attached by cords to the post, is unable to fall) suddenly assumes the vertical position, columns of arterial blood springing up a metre or more in height. This straightening of the trunk, and the jets of blood being simultaneous, are in fact related to each other as cause and effect; for at each new systole, manifested by the projection of a column of blood, the trunk is raised, to bend again immediately. The jets soon do not ascend to more than a few centimetres, and the movements of the trunk are reduced to mere oscillations. After from twelve to fifteen systoles all the blood is evacuated and the trunk remains motionless, and as it were suspended to the post, which prevents it falling on the ground. Dr. Petitgrand has never noticed any elevation of the ribs or sinking of the epigastrium, or any other sign of an attempt at respiration. The heart seems to continue to live awhile its own proper life, as is shown by its violent systoles, which are capable of affecting the stretching of the trunk.

SURGERY.

Treatment of Nasal Polypus by Sodium Ethylate.—Dr. B. W. Richardson, in the *Asclepiad*, gives the following treatment for cases of polypus of the nose. He uses a long and slightly curved pair of steel forceps, the ends of which come to a fine point. He takes a piece of soft cotton wool, places it between the points of the forceps, and, twisting it firmly round the points, makes it into a good-sized, soft, flexible probe, like the end of a bougie. He saturates the cotton probe with the sodium ethylate, and then, having caused the patient to bring the polypus into view by sharp blowing of the nostril, he plunges the cotton, charged with the ethylate, into

the polypus, and retains it in position for two or three minutes. On removing the cotton it commonly happens that the patient can expel the whole mass of destroyed polypus, in a semi-fluid form, by again blowing the nose sharply.

After the substance of the polypus has been destroyed, a second cotton probe, treated with ethylate, as before and passed along the nasal cavity to the point at which the polypus seemed to be attached, will destroy the basis of the growth as well as the growth itself.

The modus is sufficiently clear. The ethylate solution, in contact with the water of the polypus, is decomposed into caustic soda and alcohol. The alcohol coagulates the albuminous part of the mass, and the soda acts as a destructive caustic on the surrounding parts, so that the point of attachment is destroyed. This mode of treatment, like that of the actual cautery, and the tearing process by the forceps, is painful. It is not a prolonged pain, and it ceases almost immediately after the operation is completed. There has been no instance of hæmorrhage, neither have there been any severe signs of inflammation, nor of fœtid discharge.

TREATMENT OF BUBOES BY ASPIRATION. — Mr. Weston, in the *Indian Medical Gazette*, refers to two cases of bubo successfully treated by Surgeon-Major Hogg by means of the pneumatic. "The men," he says, "went out of the hospital much sooner than they would have done had the buboes been laid open. In one case the operation had to be repeated once. A pad and bandage were used after the pus had been drawn off. In our military hospitals, where the ordinary plan of laying open the bubo is practiced, one often sees the resulting sore take on an unhealthy action, and, as a consequence, the men are kept in hospital for several months. It would be well, therefore, to give the aspiration treatment a thorough trial."—*Medical Times.*

GALVANOPUNCTURE IN ANEURISM OF THE AORTA. —Dr. Francesco Brancaccio, in the *Revista Internaz di Med. e Chir.* (*Practitioner*) reports the case of a man æt. 64 years, of intemperate habits, who complained of pain in the left anterior part of the chest, over the base of the heart, which radiated to the shoulders. The pain came on suddenly after a muscular effort, and was intermittent. Examination revealed a tumor, limited above by the upper border of the second rib, on the right by the sternum, on the left by the mammary line, and below was continuous with the heart. The diagnosis of aneurism of the ascending portion of the aorta having been made, it was determined to practice galvanopuncture. A fifteen-cell Daniell's battery was used, two needles being carried into the sac through the third interspace to a depth of 1½ inch, and 1½ inch apart. The first sitting lasted sixteen minutes. In the afternoon the patient felt better, the tumor was smaller, the pulse, which had fallen from 118 to 90, was stronger, and the respirations were less frequent. Twenty days afterwards the battery was again used, with twenty elements, for fourteen minutes. Altogether it was used four times, and the patient was completely cured.

CASE OF INTESTINES ADHERENT BEHIND UTERUS, CAUSING INTENSE PAIN, RELIEVED BY ABDOMINAL SECTION.—Lawson Tait, F.R.C.S., relates the following in the *Medical Times*: S. B., aged 32, presented herself at the Birmingham Hospital for Women early in November last, complaining of constant pelvic pain dating from her last confinement, and much aggravated by the patient having "strained herself" six weeks before. On examination, the uterus was found to be somewhat fixed with a mass behind it, very tender on pressure, and clearly cystic. But for the fact that she complained of no increase of pain before or during menstruation, I should have diagnosed the case to be one of occluded and distended tube. As it was, I made no diagnosis, but advised abdominal section. This the patient readily agreed to, and I performed it on November 8. I found a good deal of matter in the pelvis, and a coil of intestine adherent in the cul-de-sac. I undid the adhesions without much difficulty and closed the abdomen. She left the hospital on November 28, and has been entirely free from pain since. I have just seen her (July 7), and find that she has had no return of her old symptoms, and is in perfect health.

This case is a very instructive one, for the physical signs were precisely those of pyo- or hydro-salpinx; and if it had happened that the patient had suffered much at menstruation, I certainly should have set it down as a case of one or other of those diseases. Suppose that, under this belief, I had acted as some (who have had no experience) advise, suppose I had tapped from below, I should have done no good; I should probably have made my patient worse; I might even have killed her. On the other hand, following my rule of opening the abdomen, I was able, with very little difficulty, to cure completely a condition which distressed the patient, which put her in constant risk of her life, and for which no other remedy was possible.

MEDICINE.

INTESTINAL SEPTICÆMIA.—This subject, which has for some time been a question for discussion as to whether it is possible that the absorption of putrid material developed in the intestine could produce septicæmia, has its illustration in a case given in the *Lyon Medical* (*Lancet*). The patient, a man aged 44, was first treated for a strangulated gangrenous hernia of the right inguinal region. It was deemed advisable to make an artificial anus, and it turned out that this unnatural opening led into the ascending colon, and not into the small intestine. All was going on well for months, when one day, without any obvious cause, the patient became delirious, a scarlatiniform rash appeared on the whole surface of the body, the pulse increased in frequency, the pupils became greatly dilated, but there was no pyrexia. The fauces were not inflamed, though the throat was

said by the patient to be dry, but no lymphatic enlargement could be detected. The rash did not disappear. The symptoms could not be laid to the charge of belladonna or any other medicament, for the patient had not taken any drug whatever. As Zuelzer and Sonnenschein have extracted from putrid liquids a ptomaine giving rise to all the toxic properties of atropine, the physician in charge, M. Lépine, made the diagnosis of auto-intoxication by an atropic ptomaine. This hypothesis fully explained the strongly dilated pupils and scarlatiniform rash, and other symptoms, as well as an intense conjunctivitis which appeared later on, as did also an irregular pyrexia. The man died of asthenia. The necropsy revealed a horrible state of the large intestine beyond the artificial anus. The colon contained a putty-like mass, extremely fetid, and it is said of an odor *sui generis*. It seemed that the washings of the bowels, which had repeatedly been made, were totally inefficacious.

Treatment of Asiatic Cholera.—Dr. F. E. M'Farland, Honorary Brigade Surgeon, gives the result of thirteen years' experience in India in a paper in the *Dublin Journal of Medical Science*, and speaks strongly in favor of permanganate of potassium. He considers in order the following plans of treatment:

1. The calomel and opium treatment.
2. The salt treatment.
3. The belladonna treatment.
4. The permanganate of potassium treatment.

He dismisses the calomel and opium treatment with a few words. He has seen many cases recover under it. Some cases will recover in spite of any treatment as some will die; but he thinks the treatment adds much to the agony of the disease, and if it does not hasten the patient to the grave, does not smooth the passage. It may be laid down as a rule that opium should never be given once collapse sets in.

The second is the salt treatment, and there are two ways to use it. One is, common salt, ʒij; bicarbonate of sodium, gr. 36; chlorate of potassium, gr. 10; water, ℥viij; to be taken every half hour or hour, according to the symptoms. The other way is, half an ounce of common salt in a pint of water every half hour or hour. He has seen the mixture act very successfully, and more so than the plain salt and water. One would imagine either of these a nauseous draught; but anyone who has seen the avidity with which a cholera patient will suck down the last drop thinks otherwise.

The salt treatment has been referred to as follows: "More cases of cholera have recovered with the salt treatment, and more cases have died, than under any other," and he cannot speak more clearly of it.

The third plan is that of belladonna. There is some reason in this treatment. Belladonna is a sedative of the sympathetic system, which is the system affected in cholera. The form recommended is ¼ grain of extract of belladonna with gr. 2 of sulphate of quinine, in a pill freshly made up, every half hour or hour, till reaction is established. The belladonna treatment requires constant watching, is very trying to the physician, but is a method of treatment worth knowing of.

The fourth plan of treatment is permanganate of potassium, and is certainly, he says, the most successful he has seen. It has many things to recommend it. In the first place you can carry a small bottle in your waistcoat pocket, sufficient to treat hundreds of cases, and no other medicine is necessary; in the next it is a pleasant remedy. From beginning to end there is nothing in the treatment to cause apprehension to the patients or add to their sufferings. The plan adopted is to give a teaspoonful of a palatable solution of the pure salt every ten minutes, regularly, by the watch, until reaction is established, and then give beef tea, etc. One grain to four ounces of pure or distilled water is the strength of the solution required. The salt must be pure, and the solution must be renewed if it become discolored, as it sometimes does. Condy's Fluid will not do. Dr. M'Farland treated one case for six hours before any material sign of improvement took place, and after sixty doses reaction became thoroughly established, and the patient made a good recovery. At the same time another man was attacked, and his symptoms were relieved in less than two hours. With the permanganate treatment the patient may drink water freely, or, what is better still, meal and water, *warm*. The only thing is not to give the drink just on top of the permanganate, but wait three or four minutes. Some object on account of the smallness of the dose which is homœopathic. One medical officer gave it in ¼ grain doses; and this caused a burning sensation to the patient's throat, and added to his sufferings.

If more than a teaspoonful be given it is rejected, like everything else. The first symptom relieved is the sickness, then the thirst, then heat returns, purging and cramps cease, and after some hours the kidneys act.

As to accessory treatment, *drinks* he approves of, but does not see why ice is so much recommended, he has found that patients will enjoy drinking from a can of water into which a good handful or two of oatmeal has been put when it was hot, just as much as any other liquid. It is fluid they want, to supply the loss of water in the blood, and they will take it in any form. *Handrubbing* he thinks is often done too roughly—that the assistant should lubricate the hands well with warm oil, and knead, press, and squeeze the affected parts rather than rub them. For *injections* he would be inclined to try large quantities of a dilute solution of permanganate of potassium, as warm as the patient could comfortably bear, or large quantities of salt and water, with chlorate of potassium, well diluted and warm. As to *bleeding* he believes he has seen one remarkable case of recovery, where, after opening the vein, he could only squeeze out a few drops of black blood, like tar, but soon after he bled profusely and never had an unfavorable symptom afterwards. He believes in the *non-stimulant* plan of treatment.

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THE DEMONSTRATION OF SYPHILITIC INFECTION BY VACCINATION WITH LYMPH FROM A SYPHILITIC CHILD. INEFFICIENCY OF EXCISION.—The advance guard of medicine of the present day is unquestionably exacting. The general spirit corresponds to the Laconic phrase in use among the speculative class—"put up or shut up." Demonstrate or cease your pretensions. It would seem as though the nature of syphilitic virus had wrought such devastations and developed under such circumstances that its capacity of operating through the vaccine lymph would be accepted by the most incredulous. Moreover there are not wanting in journalistic literature records which seem to verify the assumption. It is perhaps true that they may not bear the severe crucial tests to which indisputable facts are of necessity subjected. For practical guidance, however, one might have supposed the circumstantial evidence as satisfactory. But science says, no. Nothing but absolute demonstration. Here, as in other phases of life, the demand creates the supply.

Dr. Cory,[1] of London, as quoted by the London *Med. Record*, has experimented on himself "to test a current belief that vaccine lymph taken from a syphilitic person, if unmixed with the blood of the vaccinifer does not contain the syphilitic virus and is incapable of imparting syphilis by its inoculation." The report was made by very able observers, among whom is the well-known name of Jonathan Hutchinson, the other members of the committee being Drs. Bristowe, G. M. Humphrey and Ballard. Three experiments failed to impregnate the system, although all the children from which the vaccine lymph was taken were affected with genuine syphilis. The first experiment was made in 1877 or 1878, the fourth and successful one in 1881.

On July 6, 1881, C. caused himself to be vaccinated in three places with lymph — no admixture of blood — from the vaccine vesicle of a syphilitic child's arm, the immediate neighborhood being free from syphilitic eruptions. The vaccination was unsuccessful, but on July 26 (21st day) Dr. Cory observed that two of the places were red, in fact, papules. August 11, Dr. Cory showed his arm to Mr. Hutchinson and Dr. Humphrey, both of whom considered the spots to be syphilitic. And, as the sequel showed their diagnosis to be correct, the demonstration of the possibility of conveying syphilis by lymph from a vaccine vesicle was established. One important lesson which it would be wicked not to appreciate from this self-sacrificing experience is the possible danger of humanized virus. There is no practitioner who has not overlooked cases of syphilis, and no one can be in a position to say this or that child is not tainted with syphilis. Hence, the almost universal custom in America of using bovine virus is to be commended.

There is still another lesson of considerable import connected with the case. Dr. Cory did not hesitate as soon as Mr. Hutchinson and Dr. Humphrey, 36 days after the introduction of the virus, pronounced the sores syphilitic, to have them excised with all necessary and due precaution. Notwithstanding the excision, however, on the 31st day of August roseola developed on the forehead, temples, back of the neck and below the ears, also on the lower part of the abdomen. So that in this definite instance the excision of the chancres did no good as far as the prevention of the disease was concerned. This one circumstance must have its influence in modifying the enthusiasm developed in certain quarters of excising a supposed chancre.

[1] Supplement of the Twelfth Annual Report of the Local Government Board.

"CHILDREN OF THE SIEGE."—Such is the name applied in France to those unfortunate children who were begotten during the siege of Paris in 1871. We call them unfortunate, because conceived of mothers, who, torn alternately by the conflicting emotions of hope and despair, and too nearly famished themselves to spare requisite nourishment for their offspring *in utero*, were nevertheless compelled to yield to the lust of half-drunken husbands. Begotten of such parents amid the "horrors of the Commune,"

these "Children of the Siege" came into the world puny and misshapen. M. LeGrand du Saulle, one of France's most celebrated alienists, has stated that out of ninety-two such children examined by him sixty-four were crippled in mind or body; out of this number thirty-five showed malformations and twenty-nine were imbecile. There is nothing surprising in these facts. They are but impressive, because exaggerated illustrations of what we see about us daily; children born of want and intemperance. Is it any wonder that they grow up to beggary and crime. The lives of these "Children of the Siege" contain a lesson for us physicians, as well as for Ladies' Aid Societies.

M. Legrand du Saulle, in the same address delivered last April, brought out some interesting facts concerning the increase of insanity in France since the Franco-Prussian hostilities. He has examined 35,000 insane, at the Prefecture, in the past fourteen years, and concludes that the intense excitement of those days is responsible in many cases for the mental alienation, having either produced it directly, or precipitated its manifestation. Furthermore, he attributes the increased insanity of this latter half of the century to thirst for pleasure, pursuit of wealth, speculation in stocks and intemperance, which last was the exciting cause in 25 per cent. of his cases. Again, is there not a suggestive lesson here for us of America. Our people are not given up to a search after frivolous enjoyment, as are the French, chiefly the Parisians, with whom it is an absorbing passion apparently, nor is there here that consumption of absinthe which is accredited with the speedy production of serious brain disease; but the excitement of our stock exchanges and boards of trade, high pressure in other branches of business, and the great consumption of alcohol, are evils against which physicians, as conservators of the public health, should raise a vigorous protest.

PROGRESS OF CHOLERA IN EUROPE.—During the week ending Sept. 8, despatches show that the epidemic cholera has been making but little progress in France and Spain, but has extended much more rapidly in Italy, the scourge prevailing very severely in Naples. In the city just named, 451 new cases and 154 deaths are reported as having occurred during the twenty-four hours preceding the evening of the 8th inst. A large part of the inhabitants are represented as panic stricken, and as resorting to superstitious rites and ceremonies to a degree that would have disgraced the inhabitants in the darkest ages of human history.

THE LONDON TEMPERANCE HOSPITAL.—It is with much pleasure that we give our readers, in the present number of the JOURNAL, the paper presented in the Section of Surgery and Anatomy of the American Medical Association, at its meeting in May last, by Dr. A. Pearce Gould, of London, containing the results of one year of practice in the surgical department of the London Temperance Hospital. The facts and statistics presented, and the sentiments accompanying them, are worthy of the most careful consideration, especially by that large class of medical and surgical practitioners who practically use alcohol in some form, as though it was a universal panacea for human ills.

THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, in annual session in Philadelphia during the past week, has been largely attended, and much valuable scientific matter has been presented in the various Sections. The interest manifested and pleasure enjoyed in the receptions and social relations of this anniversary, have been greatly increased by the very large number of foreign visitors present.

THE LATE DR. GRAFTON TYLER.—The interesting biographical sketch of the late Dr. Tyler, so long and well known in Washington and Georgetown, which was unexpectedly crowded out of our last week's issue, will be found under the head of Necrology in the present number.

PRICKLY HEAT.—Mr. Henry T. Wharton in the *Lancet*, records a case of this distressing affection in a medical man who was subject to it each summer, after passing the age of thirty years, until it became intolerable. From the conspicuous follicular lichenous inflammation on his back, he could not bear to take a Turkish bath in public or to turn up his shirt sleeves in ever so troublesome an obstetric case. From May to November he was a martyr to his troublesome malady. He consulted all his friends and more than one distinguished specialist. His efforts to get cured were as unremitting as they were unavailing. At last the idea occurred to Mr. Wharton that perhaps the tight short-sleeved India-gauze undershirts worn in the summer were too thin either to absorb the perspiration, or to protect the skin from sudden (but perniciously grateful) chills. They were changed for the thickest long-sleeved undershirts made entirely of wool, such as worn in the depth of winter, resulting in the absolute cessation of his experience of "prickly heat." For years he suffered a transient attack of urticaria—itching without any outward signs, after a cold bath. Since he has taken to the constant use of hot water for all his ablutions, this irritation has never returned.

SOCIETY PROCEEDINGS.

CHICAGO MEDICAL SOCIETY.

Regular meeting September 1, 1884. "Remarks on Aneurisms," and exhibition of a large specimen by Dr. J. A. Robison.

Recent Treatment of Asiatic Cholera, as in vogue in Southern India, by Dr. H. M. Scudder.

"Remarks on Aneurisms," and exhibition of a large specimen of an aneurismal sac of the arch of the aorta, involving the aortic valves, was the title of a paper read by Dr. J. A. Robison. The following abstract which has been prepared by the Secretary we herewith append. We omit giving the etiology, pathology, and diagnosis of aneurisms, and proceed to the general principles governing their treatment, which have been to prohibit the patient from taking much exercise, to secure as nearly as possible absolute rest, and to restrict the diet. Where the heart was tumultuous, cardiac sedatives were exhibited. Such symptoms as dyspnœa, pain, etc., have been met with appropriate palliatives. The first attempt at specific treatment for internal aneurisms was employed many years since by Albertini and Valsalva, and has been known as Valsalva's method. It consists in weakening the patient by repeated blood-lettings, and by gradually diminishing his meat and drink till only half a pound of pudding was taken morning and evening, with only a measured quantity of water; so that at last the patient was so exhausted he could not lift his hand from the bed in which he was ordered to lie from the commencement of the treatment. When this stage was reached the amount of nutriment was increased until the patient's strength was restored. It is needless to say that this plan of treatment did not yield the beneficial results which were anticipated. In our day it would be regarded as barbarous were we to try and enforce it to the extreme to which Valsalva reached. A modification of this treatment, consisting of enforcing absolute rest in bed, and diminishing the food and drink, so as to diminish the quantity but not the physiological quality of the blood, has benefited a number of cases, if not entirely cured them. While some physicians have refused to employ the depleting treatment, they have resorted to measures fully as severe. Dr. Murchison and Mr. Moore, of England, have recommended, and in one case tried, the introduction of fine wire into the aneurismal sac, on the theory that the large amount of surface exposed to the circulating fluid would produce coagulation of the fibrine. In the case referred to they introduced twenty-six yards of fine iron wire into the aneurismal sac, and it is needless to say that the treatment was unsuccessful, although they contend that the result obtained demonstrated the principle was sound, and that further experiments were justifiable. A much less dangerous and probably more efficient mode of treatment is by electrolysis. Pravaz was the first to use electrolysis for reducing external aneurisms, and Cinicelli and others have applied it to internal aneurisms, but with very different results. Its employment has been extended to thoracic and abdominal aneurisms, but in eight cases of thoracic aneurisms only one was benefited; the others being unsuccessful. Only one case of abdominal aneurism was cured, and this patient died from rupture of the sac, on account of premature exertion. The results obtained from the use of the galvano-puncture have not justified us in expecting to hope for much from that method. Professor Langenbeck has published accounts of two cases which he claimed to cure by hypodermic injections of one-half to three grains of Bonjean's watery extract of ergot every three days. Balfour says he has tried this method frequently, but without any success, although he was positive that his ergot was active.

Pressure as a mode of treatment is wholly inapplicable to thoracic aneurisms, and rarely to abdominal. Dr. Murray records a case of abdominal aneurism in which pressure on the aorta for five hours, the patient being under chloroform, was successful.

We will now speak of the treatment of internal aneurisms by the administration of the iodide of potassium. It is conceded by Flint and Bramwell, and insisted on by Balfour, that the iodide of potassium is the only drug which offers any hope of cure, and that in every case it will relieve the distressing symptoms, if it does not effect a cure. Balfour says: "Of all the various modes of treating internal aneurism, there is not one hitherto mentioned which is not attended with considerable risk or danger, except Mr. Tufnell's plan of perfect rest, while the advantages to be derived from some of them are, to say the least, very problematical. But the treatment by the iodide of potassium, of which the author now writes, is perfectly safe and free from all risks, and it is equally certain to afford relief, at least no case has been yet found where relief was not attained, though naturally enough that relief is not always to be got instantaneously, but requires the treatment to be continued for some time. It also relieves the pain and other symptoms of aneurism more rapidly and more effectually than any other treatment, apart even from the powerful agency of the recumbent posture; and for the time it has been in use it has given greater and more permanent relief to a larger number of cases of aneurism than any other mode of treatment whatever. Indeed the relief to the pain and other symptoms is so great and so speedily obtained, usually from the action of the drug alone, that it is often difficult to get the patient to submit to any restrictions, besides it is not always necessary. The author has employed this method of treatment during the last eight years in a very considerable number of cases, with unvarying success so far as the relief to symptoms is concerned, and with such favorable results as to retarding the farther progress of the case, and even in some cases promoting an apparent cure, as certainly to stamp this treatment as one of the most efficient hitherto propounded for the relief of this intractable complaint.

Balfour relates the history of twelve cases treated by this method with the following results: the symptoms such as pain, dyspnœa, etc., were relieved in every case; the physical signs of aneurism were diminished in seven cases, pulsation of the tumor

ceased in two cases, diminished in four, and was not apparent from the commencement in six. The aneurismal tumor disappeared in three cases, and diminished in five; the bruit disappeared in two cases and diminished in two cases, but never existed in two cases. Five of the patients were so relieved that they could work, four were discharged at their own request, feeling well, one patient absconded, and the result of treatment in his case is not known. Five cases were termed cured, and seven were not cured but relieved. One of the twelve cases referred to was an aneurism of the innominate artery, which was cured, and Balfour claims to have cured several cases of aneurism of this artery. One of the four cases discharged at their own request was under treatment three different times, being discharged twice at his own request, but died suddenly while under the third course of treatment, the autopsy revealing an aneurism of the aorta which had ruptured into the lower lobe of the right lung. One of the twelve cases was diagnosed as a weeping aneurism, implicating the origin of the left carotid, and communicating by a small opening with the left bronchus, the patient on admission expectorating arterial blood, but this soon ceased and the patient was discharged cured. While the writer did not believe he was justified in being as enthusiastic in the praise of the iodide of potassium treatment, as Balfour, he did believe he was justified in relating the following case, and giving the iodide of potassium the credit of prolonging the patient's life and making his life comparatively comfortable:

John H. C., aged 40, a blacksmith, was first seen in March, 1883. Had had attacks of inflammatory rheumatism several years ago. In February, 1883, was attacked with severe pains in the chest, in the præcordial region, and was treated by his physician for rheumatism for some weeks. Dr. J. P. Ross saw him and diagnosed aneurism of the aorta. At this time he had a good deal of dyspnœa, some hoarseness of the voice, and quite a little difficulty in swallowing solid food. When fatigued the pains in his chest were excruciating. No tumor was perceptible, although there was pulsation in the upper sternal region, and dulness upon percussion over the area of pulsation. Two months afterward there was a swelling in the upper sternal region at the junction of the left first and second ribs, about the size of a silver dollar. A very slight bruit was heard. The voice was very husky, and the difficulty of deglutition had increased until now the patient could take no solid food whatever. He had emaciated and was losing strength very rapidly. He was ordered to lie in bed continuously, and was given 15 grains of the iodide of potassium three times daily, gradually increasing the dose until signs of iodism appeared. It was truly remarkable how soon after this plan of treatment was inaugurated, the patient expressed himself free from pain and the distressing symptoms from which he had suffered. He persevered this way until May, when he said he was so well and weary of the bed he would like to sit up. Leave was granted. A few weeks after, the writer was surprised to see him walk into his office. The patient complained of nothing. He was cautioned against such experiments, and he was told to return home and take better care of himself. His condition at this date was as follows: the continued pulsation of the tumor against the chest-wall had produced absorption of a large portion of the manubrium and an inch of the inner portion of the left first and second ribs. Consequently there could be felt the pulsations of the tumor through the chest-walls at a point where only soft tissues intervened. No bruit was discernible. On laryngoscopic examination we found complete paralysis of the left vocal cords. His voice was anserinous. During all these months he had been taking the iodide of potassium without any disturbing effects, until now, when he complained of symptoms of iodism. He was permitted to discontinue its use. From the date of this office visit he grew rapidly worse. He rapidly emaciated, dyspnœa and dysphagia increased, and finally he died of asthenia July 19, 1884, about 17 months after he began treatment.

Autopsy.—On opening the thorax a large aneurismal tumor was seen behind the sternum, about five inches in diameter. Friable adhesions of the sac to the sternum were broken up when the sternum was removed. Absorption of a large portion of the sternum and the left first and second ribs had taken place. Heart and pericardium were normal. Adhesions between the aneurismal sac and the left lung. The left lung was pressed upward and backward into the left pleural cavity, and collapsed. On opening the heart find the aortic valves roughened. Extending the incision into the arch of the aorta, find it dilated and at the anterior of the arch between the origin of the innominate and the left carotid arteries, an opening, oval in form, one inch by one inch and a half, into the sac of the aneurism. Through this opening the walls of the aorta were continuous, forming the wall of the aneurism. The tumor was firm, being composed of coagulated fibrine, and was then shown. Dr. Robison answered a number of informal inquiries relative to it, when Dr. John Bartlett cited briefly the history of a case of general chronic bronchitis and asthma, occurring in a man 70 years of age, who was supposed to be suffering from consumption for 50 years. Eight years ago when the patient came under his observation, he ordered him to take eight grains of iodide of potassium three times a day. He has not omitted a day since to take the medicine, and he has steadily improved, his kidneys have performed their natural function, his appetite has not been impaired, and he has grown fatter and stronger. The case is an illustration how long a patient may take iodide of potassium continuously without injury to the mucous membrane of the stomach or injury to the kidneys.

These remarks were followed by the reading of a paper entitled "The Recent Treatment of Asiatic Cholera as in vogue by European Surgeons of late years in Southern India," by Dr. H. M. Scudder. An abstract of which is published as under, will be read with much interest at this time, inasmuch as the writer favors a particular mode of treatment in this disease. It has been his lot during nine years' practice in India to pass through four epidemics of cholera and have the disease. He was the only European

physician in a town of nearly 50,000 inhabitants, and was at the head of a district hospital supported by the English Government and was called upon to treat a large number of cases.

One of the severest of these epidemics occurred during the famine of 1877–1878. The writer was at the time assigned to take medical charge of a large enclosed famine relief camp containing over 5,000 persons, and where often as many as 300 at a time were ill with the disease in the hospital sheds, with a death-roll during the height of the epidemic of over 50 per diem. In this camp he had the opportunity of trying, on an extensive scale, different remedies and the various modes of treatment and comparing the results. We will not take space by the enumeration of the long list of remedies that have been made use of in the treatment of cholera, or by the discussion of the value of the numerous and various forms of treatment that have been advocated, but confine this synopsis substantially to giving a description of the mode of treatment that is now employed near Madras and Calcutta. Before passing on to the subject proper, a word may be stated in reference to the writer's views upon the contagiousness of the disease. Said he: Cholera is an infectious disease and also somewhat contagious, though not highly contagious, or readily communicable by personal association with the sick as is the case with small-pox and measles. The noxious power of the cholera germ or virus (whether it is Dr. Koch's microbe or something else) seems to be more powerfully exerted sometime after it has escaped from the body of the patient than when it is freshly passed. From careful observation, study and experience in four epidemics of cholera, he has deduced the following, that the attendants and those who come into frequent and close contact with cholera patients are somewhat more apt to contract the disease than those who do not.

For purposes of treatment the writer divided the course of this disease into the following stages:

(1) A period of prodromes or prodromic stage.
(2) A first stage or stage of diarrhœa, or cholerine.
(3) A second or stage of invasion.
(4) A third or stage of collapse (algid state).
(5) A fourth or stage of reaction.

This last stage may be succeeded by a typhoid condition, or cholera typhoid state, or the patient may pass directly into a state of convalescence. In the prodromic stage, manifested by lassitude, mental depression, chilliness, nausea, and abdominal discomfort, give 10 or 15-drop doses of spirits of camphor in dessertspoonful of hot brandy every hour or two, but be careful not to allow any considerable quantity of stimulants to be taken. When epidemic cholera is prevalent, many are affected by the symptoms just described. If the remedies indicated were promptly taken the writer is confident that many attacks of cholera would be warded off. It is true that fear often produces these very symptoms, but the spirits of camphor in spoonfuls of warm brandy tends to soothe the fears and dissipate the symptoms, and yet it does not usually disorder the digestion. As soon as diarrhœa supervenes, the administration of preparations of opium together with aromatics, camphor, and a little chloroform is urgently called for.

Two parts chlorodyne to one of spirits of camphor is a very good combination, 30 drops to a dose, to be repeated as required.

Another very serviceable preparation consists of equal parts of spirits of chloroform, spirits of camphor, laudanum, aromatic tincture of rhubarb, and tincture of ginger. Teaspoonful doses every hour or two, according to the urgency of the case, or until four or five doses have been taken, alternating with either of these three combinations, an aromatic sulphuric acid mixture may be given to advantage.

A popular formula is as follows:

℞ Acid sulphuric aromat ..... ʒi
Tincture opii deodorat ʒ vi. vel.... ʒi

M. Sig. 20 or 30 drops in water every hour or two.

The writer suggested the importance of administering these remedies hot, unless they create nausea. The hot water (2 or 3 tablespoonfuls) in which the doses are given may be sweetened if desired. The patient should be required to lie down, and be kept perfectly quiet, covered with heated blankets, and dry heat applied to the surface of the body, especially to the extremities, by means of heated flatirons, hot bottles, etc. In India the administration of calomel to any extent has lately been discouraged. One or two doses may be given if thought best, but not more. As soon as frequent vomiting commences, or stage of invasion becomes established, the combinations containing opium, which have been mentioned, had better be discontinued, and either of the following mixtures given instead in teaspoonful doses at intervals after a spell of vomiting, while at the same time some morphine or morphine combined with chloral, should be administered by hypodermic injection, as the severity of the case demands. Either of the following formulæ may be chosen for exhibition internally every half hour or hour, just after vomiting:

℞ Chloroform, tincture capsici, tincture canab. Ind. āā ♏xxx, acid hydrocyanic (dil.) ♏xx, ether ♏viii, spirits menthæ pip. ♏xv, syrup sassafras comp. ad ʒis. M. S. A small teaspoonful every half hour or hour.

℞ Spirits ammonia aromatic, spirits chloroform āāʒi (each one ounce), tincture capsicum, compound tincture cardamon, tincture of ginger āāʒss (each half an ounce). M. S. Give in same dose as above.

A mixture of aromatic powder, gum arabic, and acetate of lead may be given after each evacuation.

The writer further stated that it was important to bear in mind that some preparation of opium or morphine, or morphine combined with chloral is the chief remedy for cholera, and the surest agent we can use to arrest the progress of the disease. When called, therefore, to a case already in the stage of invasion, morphine or morphine and chloral, should be administered hypodermically without delay, in order to get these sovereign remedies into the system as soon as possible. For, if we can arrest the disease before the patient has become collapsed, his chance of recovery will be greatly increased. Caution must be exercised, however, when this form of treatment is pursued, for narcotism is easily induced by repeated hy-

podermic injections, whereas very large doses of opiates can be given in this disease, by mouth and rectum, with comparative impunity. The strength of solution generally employed for injection is morphine gr. iiiss vel. gr. iv, with chloral hydrate ʒiiss vel. ʒiii, to the ounce of water. Inject 20 or 30 minims. The hypodermic use of morphine and chloral is, of course, contra-indicated when the stage of collapse has become developed. During this stage it is most essential that the patient be kept perfectly quiet, and in the horizontal position. No violent rubbings should be allowed; but the author has found it beneficial to gently rub the limbs and extremities with hot oil. To allay the thirst, let the patient suck ice frequently. Carbolic acid water, or simple acidulated effervescing drinks may also be given by the tablespoonful. It is unsafe to allow the patient to drink any fluid whatsoever in large quantities in this stage, especially when the acts of vomiting and purging have become less frequent, and the algid state well developed. Very small quantities of stimulants are useful, but they should be given with great caution, lest vomiting should be provoked. Stimulant enemas may also be given, but where the stomach has an inverted action it is often better to inject small quantities hypodermically. Experience teaches us that anything like the free use of stimulants in cholera is uncalled for and exceedingly harmful.

The reader had sometimes used small doses of atropine and strychnia, administered by hypodermic injection, apparently effectual in bringing about reaction. Amyl nitrite by inhalation may be given a trial, but it seems to exercise very little permanent or beneficial effect. Intravenous administration of milk and salines may be resorted to, but the reaction they induce is not generally of a permanent character. So that many of those who have given this method a fair trial have abandoned it. Of late years in Southern India, careful experiments have been carried out in reference to the value of impregnating the atmosphere of the sick-room with sulphurous acid by burning sulphur. The result has been, that this procedure has been introduced as part of the treatment of cholera. The writer has, on several occasions, tried this plan by subjecting the inmates of two different cholera sheds to exactly the same conditions and treatment in every respect, with the exception that in one the atmosphere of the shed was impregnated with sulphurous acid, and in the other this precaution was omitted. He found that the proportion of recoveries was considerably greater in the sheds where sulphur was used.

He therefore considers this an important adjuvant as part of the treatment. The atmosphere should not be so highly impregnated as to cause the patient or attendants to cough violently. Sulphurous acid thus applied is not only a useful remedy, but it is also believed to decrease the liability of the disease being propagated or contracted by the attendants. During the stage of reaction great care should be exercised, vomiting often continues, and the normal absorbing of the stomach and intestines is but slowly restored. Liquid nourishment by the spoonful should be most cautiously given, well salted broth, and milk given as hot as possible and not too frequently are the only forms of food admissible until the enfeebled stomach shows signs of recovering its tone.

Peptonized beef tea and milk are frequently well borne if carefully prepared, so as not to nauseate the patient. If vomiting persists, the following emulsion may be given if deemed best:

℞ Acid carbolic gr. vii, bismuth sub. nit. ʒii, mucil acaciæ, aqua menthæ viridis, āā ʒi. M. S. A teaspoonful every hour or two.

But in this stage it is good treatment to let nature do the work of restoration, and give as little medicine as possible. We must bear in mind, however, that the kidneys must be assisted to resume their functions, and for this purpose mild diuretics, such as potass. nitrate, should be carefully administered. If fever supervenes, it is apt to be of a typhoid character. A combination of iodine and carbolic acid then exerts a beneficial effect. A popular formula is as follows:

℞ Acid carbolici.....gr. iiiss
Tincture iodine.....gtt. xv
Aq. menth piperitæ.....ʒiv
M. S. A tablespoonful every two or three hours.

To relieve restlessness and insomnia, potass. bromide is often useful.

The paper elicited much discussion as follows:

Dr. G. C. Paoli said the author of the paper had omitted to mention a prominent English physician, Marshall Hall, who a few years ago in London, read a paper which excited the interest of the medical fraternity of England, because he had advanced new ideas against the old or orthodox views, then prevalent; one item to his theory was, that in cases of cholera there is irritability of the vagus nerve, and on this theory hydrate of chloral and nitrite of amyl was administered to patients having the disease in the East Indies, but that the treatment in Europe was different. The speaker had seen four cholera epidemics from 1834 to 1866. And since the latter year he has treated the disease when the unwelcome visitor made its appearance in Chicago.

Regarding the treatment, he would add but a few words, for every physician by this time is well posted in this respect. Of all the remedies the best he had known was sugar of lead combined with opium, to check the diarrhœa, in the proportion of two grains of the former to one-fourth grain of the latter given in pill as the urgency of the case demands. In the stage of collapse it was useless to administer internal remedies, because the stomach would not absorb them. The blood is inspissated and would not flow, and the best application externally is dry warmth, in the shape of heated blankets applied so as to environ the entire body and extremities. He did not believe in the bacillus or bacteria theory as a cause of the disease. No doubt they were present, but if so, they were innocent of the cause of the disease, for according to Darwin, perhaps we were once a bacillus—and surely we were innocent of intentionally causing cholera (laughter). Regarding an atom as being the cause—this he thinks is imaginary, for an atom is nothing that can be seen with the aid of a microscope. Dr. R. H. Engert asked the author of the paper what his percentage of recoveries were in the

cases which he had treated. Dr. John Bartlett gave his experience in treating 250 cases of cholera brought to a hospital in which he was attending physician. The per cent. of mortality was extraordinarily large. He expected he would be able to save one out of every two patients, but only one out of every six recovered, when they were brought to the hospital, they were in the blue stage, or semi-collapsed or partially cyanosed. Dr. J. H. Etheridge stated that he believed the nervous system would in the future be proven to have more to do with the ultimate pathology of cholera than bacilli, which he regarded as an illusionary aspect of the disease. Neurotic remedies should be given at first, and we will get at the gist of the trouble, which consists in the venous side being congested, and there is present vaso-motor spasm. To give opium, chloral, cannabis indicus and strychnia, will relax and tone this abdominal spasm of the nervous system, and aid the abdominal vessels to move correctly, perform their physiological action, and to prevent their pouring watery portions of the blood into the intestinal canal. Many years ago the theory was to start the bile, then give astringents. A few years ago Dr. Chapman, of London, in this disease, applied ice bags to the spine with very good success for diarrhœa, and to act on the abdominal vaso-motor nerves and aid them in the proper distribution of the blood. Medicines may also be given hypodermically. In the forties (1845–46) chloroform and ether were introduced as remedies on this theory of nerve spasm.

Regarding the bacillus that Dr. Koch has found in water tanks, and intestinal discharges of cholera patients, he is inclined to the same opinion as Dr. Paoli, so far as the cause of the disease is concerned, and further—the speaker regards them as a sort of "funny thing" in which one is amused by viewing them with a microscope. He illustrated his remarks by saying *that along* in the *sixties* Polli, of Milan, announced that he had discovered the true cause of quinsy. It being a germ or leucocyte, and in order to cure the tonsillitis, hyposulphite of soda should be administered to kill the germs. This theory of germs as a cause of quinsy being superlatively ridiculous, has long since been abandoned, and he, for one, is not yet convinced that bacillus is the cause of cholera.

Dr. R. E. Starkweather asked the author his views on the expediency of people retiring from the presence of the disease to remote or near distances? also what his observations have been as to frequency of cases of poisoning, where, for instance, a person having a grudge against a patient would try and make way with him by administering arsenic or strychnine to a sick person? He well remembered the year 1854, when the sentiment largely prevailed that people must retire from the disease if they wished to avoid getting it. He did not thing this idea was as universally prevalent now. He was an advocate of cholera sheds, and that sheds ought to be erected for other pestilential diseases, for the public authorities to take care of the victims, and instanced how yellow fever had thus been treated at Pensacola with better success than by any other method. In a public point of view, whether in the city or elsewhere, public authorities or health departments have a perfect legal right to do this, and could do so much better by having a number of well-trained nurses available than could be done by benevolent societies or organizations. For, in case of rice-water discharges, good nursing was the main thing to be relied upon.

Dr. D. O'Shea said he had been taught years ago that collapse in cholera was similar to shock from surgical injuries, and that the treatment in both cases should be similar. *Apropos* to the subject, he instanced the case of a tame rabbit which he was about to perform a painless physiological experiment upon, when the little animal became greatly alarmed at the surroundings. He remarked to those present that he believed the rabbit would die as a result of fright or shock, which it did in a few minutes, although it had, to all appearances, always been in good health; and as he did not remember reading anything on post-mortem appearances of the vessels of persons dying from fright or shock, he dissected the rabbit. No pathological appearance was present, except that the vena cava contained the blood of the body.

Dr. G. Newkirk asked if there was not some way by which the community could be educated, through the newspapers, so that the people could forestall these epidemics? Recently he had read in a Jewish newspaper that the Jews in France had not been afflicted with cholera. If this was true, he could not understand why they should escape its ravages, unless they had been instructed through Jewish papers to live better, or through their manner of dieting they had become insensible to the disease.

Dr. Scudder, in closing the debate, said first as to the per cent. of recoveries where the epidemic was severe, it was 20 or 30 per cent., or the percentage of deaths ranged from 80 to 90 per cent. where the epidemic was very severe. If the cases were seen early the fatality ranged from 40 to 50 per cent. In the sheds where cases were treated by fumes of sulphurous gas in the premises, nearly half the cases might be saved, whereas in one shed in the relief camp containing 20 cases, where exactly similar conditions were present where fumigation was omitted, 80 per cent. died.

In India the natives would not drink well-water. Their religion had much to do with the frequent visitations of cholera, for it taught them to drink only that which descended from heaven. The result was they drank surface water, or that which was stored in tanks near the temples of Lateran which they consider as sacred. In contrast to the natives of India were the Chinese and Japanese, because they drank well water and used the garbage and human offal to fructify the fields, and they were comparatively free from cholera. The Indians would not remove excrements and offal, neither did they cover it up, and when rain descended which amounted to 8 or 10 inches sometimes during a night, the water became polluted. The speaker did not see that any benefits would be derived by people running away from a district in which cholera was epidemic. General panic predisposes to the disease, and fright had much to do with its fatality. In India the poisoning of

persons afflicted with cholera by arsenic was frequent, and is largely undetected by the police. To warn the community, as one gentleman has alluded to, is an extensive topic. If the early known methods of checking it were resorted to, cholera would not become epidemic. The Indians are greatly prejudiced against European medicines, but (singularly enough), not so with European surgery, presumably because there are no native surgeons in India.

No European would travel without a bottle of camphor, and the English are always provided with a flask of brandy. The Europeans are well up in the use of preventive measures, and they would be sure also to be provided with chlorodyne, which is no longer a secret remedy.

LISTON H. MONTGOMERY, M.D., Sec'y.

Regular meeting August 18, 1884, D. A. K. Steele, M.D., President; and L. H. Montgomery, M.D., Secretary.

The first paper read was by Dr. P. C. Jensen, "On Cutaneous Therapeutics." After alluding to the histological and physiological relations of the skin and the internal secreting organs, including the mucous membranes, the writer discussed the question of cutaneous absorption, alluding to experiments in which limbs had been immersed in various solutions for weeks without any evidence of absorption. On the other hand, quoted Bichat as authority for saying that when the cutaneous surface of a limb is immersed in putrid gases, absorption takes place and the poison is subsequently eliminated by the bowels. He claimed that the rate and degree of absorption of any medicine depends largely upon its power of diffusion. Physiologically, he regarded the skin as a "colloid septum, on one side of which lie the blood-vessels containing an alkaline fluid, while an acid is on the other side; a condition most favorable for osmosis." He quoted Waller to show that alkaloids dissolved in chloroform were readily absorbed from the cutaneous surface, while the same substances dissolved in alcohol were taken up very slowly or not at all. He then gave systematically the objects and methods of local treatment in diseases of the skin, including a considerable number of formulæ, but which we must omit for want of space.

Dr. C.W. Earle read a short paper on the Management of the Summer Diseases of Children, of which we can give only the following conclusions:

CONCLUSIONS.

1. The most frequent infantile disease in the city during the summer months is entero-colitis.

2. Excluding causes of infantile mortality largely beyond our control, improper feeding is one of the chief causes of the great number of deaths among this class.

3. Mothers should nurse their children. In lieu of this, a wet nurse should be procured. If this is impossible a mixed diet is preferable, and, lastly, artificial diet must be resorted to.

4. Artificial foods containing considerable caseine are found to be a cause of indigestion and summer diseases.

5. In many cases cows' milk diluted with water does not seem to agree with children. Barley water or rice water as the diluent seems to make a more physiological food.

6. Condensed milk seems to agree with a considerable number of children, but, in many cases, a sufficient quantity is not used to nourish a child. Used in proper quantities and diluted with rice or barley water, it is without doubt one of the best artificial foods.

7. Cream, mutton broth and white of egg are valuable adjuvants to the dietary of infants.

8. Whatever the artificial food a child is having, the physician should examine frequently for evidences that it is a proper food as regards quality and quantity. The normal elevation of the fontanelles and increasing weight are among the conditions denoting a satisfactory and favorable nutrition.

The remainder of the evening was spent in discussing the subject suggested by the paper of Dr. Earle.

FOREIGN CORRESPONDENCE.

PARIS LETTER.

PARIS, August 22, 1884.

The cholera epidemic, while decreasing at Toulon and Marseilles, has extended over the greater part of the littoral of the Mediterranean and even to the north of Italy, in spite of the disinfecting and quarantine measures carried out by the latter both by sea and land, but it does not make much progress toward the north. People must be chary as to how they receive news from the lay papers, particularly with regard to the prevailing epidemic diseases, as, intentionally or unintentionally, they do a great deal of mischief by exaggerating or even falsifying the real state of things. Thus it has been more than once reported that cholera was within the walls of Paris, and on each occasion it was proved to be false. Almost every sudden death that now takes place is put down to cholera, and there is no doubt that there have been errors of diagnosis even in the cholera-stricken districts, and the mortuary list from that disease is thus often unnecessarily swelled. The malady, however, seems to be dying out, and even the discussions at the Paris Academy of Medicine are wearing out without any satisfactory solution being arrived at as to the true nature of the present epidemic. It is now pretty generally admitted that the disease is of the genuine Asiatic type, though slightly modified, but Dr. Fauvel will not be shaken in his opinion, and still maintains that the cholera is of the sporadic type. You are aware of Dr. Koch's theory of the etiology of cholera, which he considers is due to the presence of bacilli in the intestines, but Drs. Strauss and Roux are not of the same opinion, and they do not consider that the pathological data furnished by Dr. Koch are sufficiently conclusive as to the nature or origin of cholera, as the bacilli described by the German savant as being peculiar to the disease were

found in other pathological conditions, such as in the stools of dysenteric patients, in the vaginal mucus of women suffering from leucorrhœa, and they were once observed in the uterine secretion of a woman affected with epithelioma of the cervix uteri. They report that in the epidemic in Egypt, they observed that the blood of cholera patients contained excessively small thin particles, presenting the aspect of organisms. At Toulon, the same phenomena were observed in the course of their researches, though not always. They suppose these corpuscles to be due to a special alteration of hæmoglobin, a view also shared by Dr. Malassez, who examined specimens of blood obtained from cholera patients in Egypt and Toulon.

It will be recollected that in the month of May last M. Pasteur announced his discovery of an attenuated virus of rabies. He at the same time requested the Minister of Public Instruction to appoint a commission to report on his experiments, of which commission M. Bouley was appointed President. On the 8th inst. M. Bouley's report appeared in the *Journal Officiel*. After giving an account of the results of the different methods of experiment adopted by M. Pasteur, viz.: 1, Trephining for inoculating the brain; 2, injection into the blood; 3, the bite of the dog, M. Bouley stated that the method by inoculation seemed to be the most efficacious, but yet it remained to be ascertained how long the immunity against hydrophobia would last—whether its influence would be persistent, or whether it would be so transitory that it would be necessary to repeat the inoculations frequently, which would render them *nil* in practice. Moreover, it was asked whether the preventive action of inoculation with the attenuated virus would be sufficient to annul that of the virus inoculated by the bite of a mad dog—in fine, whether man may obtain any advantage from "this great and memorable discovery." In order to render the experiment by cerebral inoculation more intelligible, I may mention that the mode of procedure adopted by M. Pasteur was as follows: The matter for inoculation was taken from the pons varolii of a dog who died in the infirmary at Alfort from ordinary hydrophobia. A circular piece of bone five or six millimetres in diameter was removed with the trepan, and the inoculation was made with a syringe in which the extremity of the needles was bent almost to a right angle, so that the matter was inoculated immediately beneath the dura mater, and not into the cerebral substance. In this manner two dogs that had been submitted to prophylactic inoculation, and two which had not, as well as two unprotected rabbits, were inoculated. Subsequently two protected and two unprotected dogs were allowed to be bitten by a dog suffering from hydrophobia, and after the death of this dog, six other dogs, three protected and three unprotected, were inoculated.

On subsequent days, the experiments were repeated and varied. Altogether 42 dogs were used, of which 23 were protected by prophylactic inoculation, and 19 were unprotected. Of the 19 not protected, 14 died of hydrophobia; that is to say, of animals bitten, 3 out of 6 died; of 8 animals in whom intravenous inoculation was performed, 6 died, and all 5 inoculated through an aperture made in the cranium with a trepan; of the 23 dogs protected by prophylactic inoculation, not one died of hydrophobia, one died with diarrhœa; but inoculation showed that there was no reason to suppose that the animal had hydrophobia. M. Pasteur made the same statements before the International Medical Congress just held at Copenhagen, and M. Bouley, writing in the name of the commission, testified that, so far as the investigation had gone, it had been found that M. Pasteur had advanced no statement which was not rigorously exact.

At the banquet which closed the proceedings of the Congress at Copenhagen, M. Pasteur was placed to the right of the President, an honor due to his high and well won reputation.

Dr. Proust has been appointed Inspector General of the Sanitary Services of France, in the room of Dr. Fauvel, resigned.

Dr. Burg, whose name has been for nearly 30 years intimately connected with metallotherapy, particularly with reference to the influence of copper as a preventive of cholera, died last week in the 63d year of his age. A. B.

COPENHAGEN, Aug. 18, 1884.

The British Medical Association and their annual dinner, and the International Medical Congress—the two great medical meetings of the year—are closed, and much has been accomplished by the interchange of views by the physicians from all parts of the world. The meeting at Belfast was unusually good, and the address of Dr. Cuming, the President, was both interesting and eloquent. The Sections were well attended, especially the one of Therapeutics, which held its first session at this meeting.

Drs. Sayre, Daly and Shoemaker, of the American Medical Association, read papers before several of the Sections, and reflected much credit upon their profession at home. The annual dinner attracted much attention, the short addresses being unusually good. I was very much struck by the toast to our guests, and as it referred to a prominent member of the American Medical Association, I will give you, briefly, Dr. Redfern's remarks, and the reply:

In proposing "the guests" Dr. Redfern said: "This is a proud day for Belfast, for Ireland, and for you, Mr. President, very specially. We have been honored with the presence of many of the most distinguished members of our profession who have come from great distances to take part in this meeting of the British Medical Association. I have always thought there is no profession or calling in life which combines so many sources of pleasure and enjoyment as the medical profession. I know of no satisfaction comparable to that which results from the relief of human suffering, and the prevention of disease; but when yesterday morning I witnessed what many of you also witnessed,—a little child, the victim of spinal curvature in the hands of one of our guests, Prof. Sayre, and saw its anxious, suffering expression changed to one of ease, comfort, and enjoyment, I

had no longer a mere intellectual conviction of the value of medical aid, but a real conviction of the heart.

"We all know that however careful and skilful a nurse may be, there is a wide difference between her handling of any injured part, and that of the surgeon whose firm and steady grasp gives confidence, checks vibration and affords instant relief. And such was the effect of the steady and gentle hand of our guest who sits near me, when the countenance of the little sufferer proclaimed its relief without the utterance of a word, and testified that the master's hand was upon the rope. I propose to you the toast of 'Our Guests,' and ask you to couple with it the name of Prof. Sayre, of New York, and Dr. Pozzi, of Paris."

Dr. Sayre rose to reply to the toast proposed by Dr. Redfern, and said, "Mr. President and gentlemen, I feel greatly honored at being called on to respond to this toast, but after the remarks of Dr. Redfern, I scarce know what to say, for when the heart is full the tongue finds it difficult to express the thoughts which throng the brain. I myself feel personally grateful to the members of the British Medical Association for the many kindnesses they have shown me both now, and on the former occasions when it has been my good fortune to be with you, and when told this afternoon that I was expected to respond to the toast of 'Our Foreign Guests,' I felt that if anyone had cause to be grateful for a kind reception, it was myself. I object, however, to the term 'foreign.' We all proud and happy to be your guests, but we Americans are not 'foreigners,' we have simply come back as chickens to the shelter of the old hen's wings. But if we do seem to you as strangers, the fault is not on our side, but lies with you yourselves. We send you our best men year after year, but I am sorry to say we look in vain for a corresponding representation of your body at our yearly national gathering. You remind me very much of what I heard a man say in your streets the other day; speaking of reciprocity, he said, 'reciprocity, what is that?' 'Ah, don't yer know, Pat; why it's wan of the grandest virtues on airth, it's wan of the noblest sintiments can govern a man. Why, it's gittin all you can and giving nothin' back in return.' We have our own Medical Association, and when I was here in 1879 I was so struck with the mode of formation of your body, and the influence exercised by your journal that I studied the matter very carefully, and made the establishment of a similar journal the subject of my address as President in the following year, and I am happy to say that my suggestions have resulted in the formation of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, which is now in successful operation.

"We have, I must remind you, a way in our country of dividing the labor to be performed among different men, giving to each the part he is most fitted to perform. I represent the wheel-horse for hard work, but I see a short distance from me Dr. Shoemaker, of Philadelphia, who is for the leader of the team, all dash and fire, and I would recommend you all to his mercies."

Dr. John V. Shoemaker.

Mr. President and Gentlemen of the British Medical Association:—I deeply regret I cannot respond according to the prediction of our distinguished friend, Prof. Sayre. The American delegation, although very large, has been represented by the ex-President of the American Medical Association, Dr. Sayre, and no better and more eloquent member of our profession from America could have spoken to you upon this occasion. I see on all sides other representative men from my country. Here on my right is the venerable Dr. Moore, President of the American Surgical Society, and Dr. Didama, President of the New York State Medical Association; and on my left Dr. Daly, of the Medical Society of the State of Pennsylvania, gentlemen who could have addressed you much better than the youngest member of our delegation.

During the festivities this evening I have had commingled feeling of sadness and joy. Sadness to think that the great medical teacher and surgeon, the late Prof. Gross, of my country, who took so much pleasure in being present at your meetings and who always returned among us invigorated by his contact with you, who enthused the American physicians of the greatness of your organization, had but recently passed away while looking forward to meeting you all upon this occasion.

The feelings of joy have likewise been deeply experienced, that I should have the pleasure of being present at this meeting, and of seeing and hearing so many of the eminent English physicians whom we have heard so much about in America. The American physicians, and especially the delegates among you, are all most happy to see the great perfection that your organization has reached. It is to-day the most powerful society of medical men in the world, and your journal has well shown the large amount of scientific work you are doing every year. I might also add we are most happy to commend your journal, which is superior to any publication of the kind that comes to us from the four quarters of the globe. I speak not only as a physician, but as a journalist having opportunities of examining hundreds of medical periodicals, and I say to you that among them all the *British Medical Journal* has no equal. Your contributions, your editorials, and, in fact, the general make-up of your journal has no rival. As Dr. Sayre stated, and it was mainly through his suggestion, the American Medical Association have tried to follow your good example by also publishing our own journal. We are yet young in the work; the task is difficult, and we hope our efforts will be eventually successful. Come to America. I bid you all welcome on behalf of our delegates and the profession of my country. Let your numbers among our annual gatherings be larger. You will fill the older as well as the younger physicians with enthusiasm, and we may thus hope at least in time to approach to the great perfection of your journal and the British Medical Association.

The meeting of the Congress at Copenhagen was very large, the Germans, however, were greatly in the majority. The opening of the Congress on Sunday,

Aug. 10, in the presence of the King of Denmark and Greece and both royal families, was most impressive. The Danish people were most generous and hospitable toward all in attendance, especially to the large number of Americans. Very many of the foreign delegates present expect to visit America in 1887, at the next meeting, which already has the appearance of being very large.

DOMESTIC CORRESPONDENCE.

MEMBERSHIP IN THE NEBRASKA STATE MEDICAL SOCIETY.

ASHLAND, NEB., Sept. 3, 1884.

N. S. DAVIS, M.D., EDITOR.

Dear Doctor:—You will oblige me very much if you will insert these lines into your next issue of the JOURNAL, as well as the subjoint resolution, adopted by the Nebraska State Medical Society at its last session, May 14 and 15.

MINIMAL QUALIFICATIONS FOR MEMBERSHIP IN THE NEBRASKA STATE MEDICAL SOCIETY.

No applicant for membership in the Nebraska State Medical Society shall be received, who is not a graduate of a school the requirements of which embody the following conditions:

1. Creditable certificate of good moral character.

2. Diploma of graduation from a good literary and scientific college or high school; or, lacking this,

3. A thorough examination in the branches of a good English education, including mathematics, English composition and elementary physics or natural philosophy.

4. Branches of medical science to be included in the course of instruction: Anatomy, physiology, chemistry, materia medica and therapeutics, theory and practice of medicine, *pathology*, surgery, obstetrics, gynæcology, and *medical jurisprudence*.

5. The time occupied in the regular courses or sessions from which students are graduated shall not be less than five months, or twenty weeks.

6. Two full courses of lectures not within one and the same year of time shall be required for graduation with the degree of Doctor of Medicine.

7. Regular attendance during the entire lecture courses shall be required, allowance being made only for absences occasioned by the student's sickness, such absences not to exceed twenty per centum of the course.

8. Regular examinations or quizzes to be made by each lecturer or professor daily, or at least twice each week.

10. Each student shall have dissected during two courses.

11. Attendance during at least two terms of clinical hospital instruction shall be required.

12. Time of professional studies before graduation shall not be less than three full years, including the time spent with a preceptor, attendance upon lectures or at clinics and hospitals.

13. The college must show that it has a sufficient and competent corps of instructors and the necessary facilities for teaching, dissections, clinics, etc.

A. S. v. MANSFELDE, M.D.
Permanent Secretary Neb. State Medical Society, Ashland, Neb.

My reasons for thus troubling you for space are: The absence of a professorship on *General Pathology* in most all the annual catalogues of colleges finding their way to my table, especially those of Illinois, the State Board of Health of which has adopted the self-same resolutions for its guidance; in fact, those of the Nebraska State Medical Society are copied from them.

Now, two conclusions are self-evident. 1. Colleges which do not pay attention to these resolutions, *i. e.*, do not have 10 professorships as above indicated (and spicing in of General Pathology in the Chair of Principles and Practice of Medicine is not to be thought of, as far as the Nebraska State Medical Society is concerned) cannot expect their graduates to receive recognition, *a*, by the Illinois State Board of Health, and *b*, by the Nebraska State Medical Society.

2. The resolutions above referred to are, as so many other good resolutions, the pavement of the road to hades.

Speaking for the Nebraska State Medical Society and not as one of its officers, but as one of its members, who thinks himself capable to voice the society's feeling in this matter, I can avow that no graduate of any college which does not fulfill the above resolutions to the letter, need expect recognition as long as those resolutions are in force. Let students and teachers take notice of this!

But what about the Illinois Board of Health? We, out here in our young State, feel a little strange when we notice that the Illinois colleges pay no attention to the resolutions of their State Board, excepting the Chicago Medical College, perhaps. How is this?

An explanation would please the many readers of the Association's journal in Nebraska very much, and is respectfully solicited, with or without the aid of Dr. J. H. Rauch.

Very truly yours,
A. S. v. MANSFELDE.

PARASITES.

While physicians are diligently searching, in this latter day, for all sorts of micro-organisms, whether as tubercle bacilli, cholera bacilli, pneumonia micrococci, or what not, there is another form of creature demanding vigorous antiseptic treatment. Though not microscopic of body, it is infinitesimal of soul. We do not need to hunt for it with magnifying lenses, nor to immerse it in staining fluids. In its own natural color, that of unblushing effrontery, it daily makes itself apparent to the eye of the medical man, and, we may add, that of his collector. Do we need to describe this pestiferous vermin further? It is that most odious of all parasites, who feeds on the tender heart of the doctor.

Seriously, why should the medical man be compelled to suffer at the hands of "dead-beats" in a manner and to a degree that would be tolerated by

no other professional or business man? The medical profession does an enormous amount of charitable work, publicly and privately. Its services at dispensaries and hospitals are purely gratuitous, and in addition to all this there are few medical practitioners who do not attend clients in limited circumstances, either gratuitously or for an insignificant remuneration. Yet these public benefactors are daily imposed upon by worthless scamps, who employ every means possible of beating the doctor out of his justly-earned fees. It is proverbial that the doctor's bill is the last to be paid, even by those who have no intention of evading it ultimately. Furthermore, the medical man is expected to give credit to persons whom a merchant would never think of trusting. It is mean and uncourteous for him to present his bill under several months, and, if he insists on the payment of it, he is reviled. Now, why should these things be? The average practitioner of medicine, even if he do not enter the profession for the sole purpose of earning a livelihood (and if such be his motives he had better look elsewhere), is, nevertheless, compelled to support his family by his practice. If so, then, why should he not conduct it on strictly business principles, having due regard, of course, to professional ethics and those moral considerations that should actuate the honest, high-minded gentleman. Above all, why should he be forced to attend patients who have no intention of remunerating him? If people be really impecunious, let them go to the dispensaries, and if they are "dead-beats" let them be published as such. Can there not be a black list prepared, to which all physicians can have access? So soon as a doctor is defrauded of his fee by one of these parasites, he might publish the name and address in some local journal with which arrangements had been made to have space allotted to such a black list. We feel convinced that if physicians would form some such plan for mutual protection, the evil of which we complain would be greatly lessened. This is but a suggestion, and we trust some philanthropic mind will concoct an effective parasiticide of the kind required.

R. H. B.

NECROLOGY.

TYLER, GRAFTON, M.D., of Georgetown, D. C., was born in Prince George Co., Md., Nov. 21, 1811; died at his residence, corner Washington and Gay Sts., Aug. 26, 1884. He is descended from a family of Tylers who came from England and settled in Maryland in 1660.

The doctor was the second son of Grafton and Ann H. (Plummer) Tyler, and was born on the ancestral estate. The late Prof. Samuel Tyler, of the Law Department of Columbia College, was an older brother. Dr. John Tyler, of Frederick, Maryland, was an uncle of his father, a physician of note in his day; was a fellow student of the celebrated Abernethy in London and Edinburgh. Dr. Wm. B. Tyler was his son, and fully sustained the reputation of his father in Western Maryland. Dr. Grafton Tyler received a good classical education at Rev. James Carnochan and Rev. James McVean's school in Georgetown before the former became President of Princeton College, N. J.

Dr. Tyler began the study of medicine with Dr. Richard Duckett, a physician of ability and large practice, who lived on the adjoining plantation to Dr. Tyler's father.

Dr. Tyler attended lectures at the University of Maryland, and became an office student during the winters with Prof. Samuel Baker, Sr., of Baltimore.

Dr. Tyler received his medical degree from the University of Maryland in 1833. On leaving college, his preceptor was so attached to his pupil that he at once took him into partnership, though each retained their separate residence. Early in his professional life he had a predilection in favor of surgery, and did some good work in that department. But he gradually gave that up, and devoted himself almost exclusively to general family practice and consultations with brother physicians.

The labor of a large country practice told so seriously upon his health that, by the advice of physicians, he gave up professional business, which was beyond his physical powers to discharge. In 1843, he removed to his late residence in Georgetown, where the labor would be less than in his former field of duty. He speedily acquired a good practice, and shortly after settling here he was selected as Physician to Georgetown College, a position in which he gave eminent satisfaction, and retained to the time of his death.

In 1846, Dr. Tyler was elected to the Chair of Pathology and Practice in the Medical Department of Columbia University, and a few years later of Clinical Medicine in the Washington Infirmary. His duties to a large clientage induced him to resign these positions in 1859, but he was elected to and retained the position of Emeritus Professor. He was appointed a member of the first Board of Visitors of the Government Hospital for the Insane, but after six years' faithful service resigned.

The active temperament of the doctor and his popularity with the people of Georgetown led him to be elected to the Council of Corporation of Georgetown, and was made President of the Board.

He was also for years President of the Board of Health of Georgetown. Dr. Tyler early identified himself with medical organizations, becoming a member of the Medico-Chirurgical Faculty of Maryland in 1833. He was a member of the Medical Society of the District of Columbia since 1846, and served in all its offices, including that of president in 1872. He was also a member of the Medical Association of the District since 1848, and has held most of its offices. He became a member of the American Medical Association in 1848 and attended meetings in 1852 and 1855, when he was elected one of the vice-presidents. He also attended in 1858-'66-'68-'70-'72, and 1884.

He was one of the consulting physicians of Providence Hospital and president of its medical board from its opening in 1863. He was one of the original incorporators and a director of the Children's

Hospital since its organization. Dr. Tyler was a ready writer, a fluent and eloquent public speaker, and was selected by the physicians on several occasions to deliver public addresses, some of which have been published. He also found time to contribute valuable articles to medical journals. An article in 1841, contributed to the *Baltimore Medical and Surgical Journal*, on an obstetric subject attracted a good deal of attention. An address on "Medicine as a Science and an Art," in 1851, delivered in the hall of the Smithsonian Institution, was also an able paper. This was printed in pamphlet form. Dr. Tyler has been through life an exemplary member of the Protestant Episcopal Church. In January, 1836, he was married to Mary M., daughter of Walter Bowie, Esq., of Prince George's Co., Md.

He had eight children, five sons and three daughters. One of his sons, Bowie Tyler, is a physician in full practice in Georgetown. Dr. Tyler was a man of polished manners and great kindness of heart, and was extensively employed in times past by our leading citizens as well as by statesmen sojourning in Washington city. Dr. Tyler will be greatly missed by numerous patrons and strongly attached friends, both in Washington and Georgetown. He leaves but six physicians living who were in practice in the District when he settled here, namely, Drs. Lindsly, Burrows, Liebermann, Howard, May and Ritchey.

The Medical Society of the District of Columbia held a special meeting on the evening of the 27th inst., and passed a series of resolutions expressive of their regard for the memory of Dr. Tyler, and resolved to attend his funeral in a body.

Doctor Tyler's remains will be interred on Friday 29th inst , in Oak Hill Cemetery, by the side of his wife, who died some years ago. J. M. T.

MISCELLANEOUS.

A QUEER SIBERIAN DISEASE.—The person affected seems compelled to imitate anything he hears or sees, and an interesting account is given of a steward who was reduced to a state of perfect misery by his inability to avoid imitating everything he heard and saw. One day the captain of the steamer, running up to him, suddenly clapping his hands at the same time, accidentally slipped and fell hard on the deck. Without having been touched the steward instantly clapped his hands and shouted; then, in helpless imitation, he, too, fell as hard, and almost precisely in the same manner and position as the captain. This disease has been met with in Java, where it is known as "Lata." In the case of a female servant who had the same irresistible tendency to imitate her mistress, the latter, one day at dessert, wishing to exhibit this peculiarity, and catching the woman's eye, suddenly reached across the table, and seizing a large French plum, made pretense to swallow it whole. The woman rushed at the dish and put a plum in her mouth, and after severe choking and semi-asphyxia, succeeded in swallowing it; but her mistress never tried the experiment again.—*London Medical Record.*

OFFICIAL NOTICE.

ANNUAL DUES from members of the Association—*Five Dollars* per annum—are payable directly to the Treasurer. Such payment entitles them to receive the JOURNAL of the Association for one year.

SUBSCRIPTIONS TO THE JOURNAL from those who are not members should be forwarded to the office of publication, Chicago.

BACK VOLUMES OF THE TRANSACTIONS may be procured, at reduced rates, by addressing the Treasurer.

THE INDEX to the 33 Volumes of Transactions will be forwarded, postpaid, on receipt of *One Dollar* by the Treasurer.

According to a resolution passed May 9, 1884, at the Washington meeting, continuous payment of Annual Dues is required, to retain permanent membership.

RICHARD J. DUNGLISON, M.D.,
Treasurer.

Lock Box 1274, Philadelphia, Pa.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT UNITED STATES ARMY, FROM AUGUST 31, 1884, TO SEPTEMBER 5, 1884.

Byrne, Charles C., Major and Surgeon. Relieved from duty in Department of California and to report in person to the Com'd'g General Dept. of the Platte for assignment to duty. (S. O. 207, A G. O , Sept. 3, 1884.)

Town, F. L., Major and Surgeon. Relieved from duty in Dept. of the Columbia and to report in person to the Com'd'g General Dept. of Texas for assignment to duty. (S. O. 107, C. S., A. G. O.) Granted leave of absence for twenty-five days. S. O. 127, Dept. of the Columbia, Aug. 25, 1884

Havard, Valery, Capt. and Asst.-Surgeon. Relieved from duty in Dept. of Texas and to report in person to the Com'd'g General Dept. of the East for assignment to duty. (S. O. 207, C S.,A. G. O.)

Hall, Wm. R., Capt. and Asst.-Surgeon. Relieved from duty in Dept. of Texas, and to report in person on Oct. 1, 1884, to the Superintendent general recruiting service in New York City, for duty at David's Island, N. Y., relieving Asst.-Surgeon M. E. Taylor, from duty at that station. (S. O. 207, C. S., A. G. O.)

Gibson, R. J., First-Lieut. and Asst.-Surgeon. Relieved from duty in Dept of the Missouri, and ordered to Dept. of California for duty. (S. O. 202, A. G. O., Aug. 28, 1884.)

Hopkins, Wm. E., First-Lieut. and Asst.-Surgeon. The leave of absence granted him in S. O. 67, Aug. 7, 1884, Dept. of Arizona, is extended one month. (S. O. 204, A. G. O., Aug. 30, 1884.)

Dietz, Wm. D., First-Lieut, and Asst.-Surgeon. Relieved from duty at the Mil. Academy, West Point, N. Y., and ordered to the Dept of the Missouri for duty. (S. O. 202 A. G. O., Aug. 28, 1884.)

LIST OF OFFICIAL CHANGES IN THE MEDICAL CORPS OF THE NAVY, FOR THE WEEK ENDING SEPTEMBER 6, 1884.

P. A. Surgeon P. M. Rixey, from special duty at Washington, D. C, September 8, and to the "Lancaster," European squadron.

Surgeon A. S. Oberly, from the "Richmond," August 30, and wait orders.

P. A. Surgeon S. H. Dickson, from Asiatic squadron July 29; sick leave August 30, 1884.